LINCOLN
APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS

MAY 27 1993

May 26, 1993

Mr. Robert Haslam
Assistant Hazardous Materials Specialist
Hazardous Materials Management Division
Vermont Department of
Environmental Conservation
103 South Main Street
Waterbury, Vermont 05671-0404

RE: Monkton Ridge, Site # 91-1120, Preliminary Site Evaluation Report

Dear Bob:

As requested, Lincoln Applied Geology, Inc. (LAG) has completed our preliminary site evaluation of the Monkton Ridge area under contract #0963331. The evaluation included a site visit, interviews with residents, a potential contamination source and receptor survey, limited water quality sampling and analysis, a summary review of available geologic information, and a review of VDEC files. This letter report serves to summarize that evaluation in completion of our April 26, 1993 work plan.

Information gathered during the preliminary site evaluation reveals that the Horner and Dingler bedrock wells continue to be contaminated with elevated levels of specific BTEX compounds at about the same concentrations detected in the past. The compounds of primary concern are benzene and ethylbenzene. Our evaluation indicates that many potential ground water contamination sources do exist in the vicinity. The sources include former gasoline USTs, two known fuel oil USTs, at least ten above ground fuel oil tanks, and many on-site septic leachfields and dry wells. Although the source of the BTEX contamination has been assumed to be gasoline, recent chromatograms of the contaminants in the Horner and Dingler wells do not conclusively support a gasoline source.

Site Location

Monkton Ridge is a small village situated along the axis of a north-south trending bedrock ridge in the Champlain Valley of Central Vermont. **Figure 1** is a General Location Map showing Monkton Ridge, the Dingler and Horner properties, the former Bennett's Garage (Horner), and the Monkton General Store. **Figure 2** is a regional site map of the area that shows the surrounding residences and owners, surface topography, and soil types. **Figure 2** has been prepared utilizing recent orthophotography as a basemap for digitizing into a CADD program (computer aided design and drafting). Other features such as SCS soils maps, USGS topographic quads, and many visual observations were then digitized and layered onto **Figure 2**.

The ability to manipulate data within this format has allowed us to expand our views of the site or add additional features as shown in **Figures 3** and **4**. **Figure 3** depicts an expanded detailed view of the site where locations of both potential sources and receptors are identified relative to the topographic contour of Monkton Ridge. **Figure 4** is essentially the same as the **Figure 2** regional site map with the visible geologic structural features delineated.

Historical Perspective

On April 10, 1991 the Vermont Department of Environmental Conservation (VDEC) was notified that the private bedrock drinking water well supplying the Russ Horner residence (formerly Bennett's Garage) was contaminated with some type of petroleum product. Mr. Horner had smelled very strong odors of petroleum in the water pumped from his well. The subsequent collection and analysis of drinking water samples by VDEC from both the Horner well and the Paul Dingler bedrock well immediately to the north revealed that both wells contained elevated levels of benzene and ethylbenzene with traces of toluene detected. Since these compounds are present in gasoline, and the former Bennett's Garage had operated two gasoline underground storage tanks (USTs) and pumps when in business prior to 1985, it was believed that the contamination source may have been previous gasoline leaks, spills, or overfills from the pumps, piping, and/or USTs.

For the last two years, the drinking water supplies of many of the nearby homes in Monkton Ridge have been sampled and analyzed by VDEC for the gasoline compounds BTEX and MTBE. These water quality analyses indicate that petroleum contamination is present only in the Horner and Dingler bedrock wells. Two point-of-entry water treatment systems (that remove BTEX contaminants) were installed on the Horner and Dingler water systems in the Summer of 1991 and continue to operate effectively.

Receptor Survey

A receptor survey was conducted by LAG on April 26, 1993. Homeowners were interviewed regarding the type, location, and construction of their on-site water supplies; the presence of petroleum fuel tanks and propane tanks; and the locations of on-site septic leachfields and dry wells. This data was then placed on the digitized site map that is presented as **Figure 3**. Review of **Figure 3** reveals that there are many potential contaminant sources and receptors located in the Monkton Ridge area.

Drilled bedrock wells have been confirmed at 17 residences, the Monkton General Store, and the Monkton Town Hall and Library (shared). One shallow dug

well remains in use for potable water at the Jardin residence located immediately south of the former Bennett's Garage and the Horner property. Mr. Jardin would not allow sampling of his well water for analytical purposes. Seven other shallow dug wells that are not in use were located. They include: two wells on Mr. Bean's property near the former foundations of an old barn and an old house; one well on the Horner property; one well on the Thomas property; one well on the Conway property; and two wells on the Dingler property. The dug well closest to the Dingler buildings has been filled with rubble and abandoned, and the other is a steel culvert well with no top and has abundant algal growth present in the water. The Horner spring (dug well) was sampled for water quality since it is in a downgradient position relative to the former USTs. The analytical results included in **Appendix A** indicated that no detectable levels (ND) of BTEX or MTBE were present in the water.

Site Geology

Monkton Ridge is located near the apex of the Monkton cross anticline, an east-west trending anticline separating two synclinoria: the northward plunging Hinesburg synclinorium to the north and the southward plunging Middlebury synclinorium to the south. The bedrock underlying Monkton Ridge consists of the Cheshire quartzite of Lower Cambrian age. Typically the Cheshire quartzite consists of a massive white quartzite unit about 350 feet thick that grades into the overlying Dunham dolomite through an interbedded zone of dolomite and quartzite about 50 feet thick.

Above the Dunham dolomite lies the younger Monkton quartzite. However, in the Monkton Ridge area the normal sedimentary sequence is disturbed by the Monkton thrust fault, which has caused the older Cheshire quartzite to be thrust westward over the younger and stratigraphically higher Dunham dolomite and Monkton quartzite. The Monkton thrust surface is probably a highly fractured zone through which ground water readily migrates. Drilled bedrock wells intersecting this zone may encounter increased well yields.

Field observations made of the Cheshire quartzite structural geology immediately north of the Conway and Martin residences indicates that the quartzite beds dip 33 to 60 degrees to the east and the strike orientation ranges from N15E to 9W. The dip of joint and fracture surfaces ranged from 55 to 85 degrees, and the strike ranged from N67E to N85W. These features are delineated on **Figure 4** along with the surficial soils, topography, and impacted residences.

Surficial geologic sediments include both glaciolacustrine beach gravels observed along the western side of the bedrock knoll and possibly in the vicinity of the Horner and Dingler wells at the north end of the ridge, as well as glacial till, silty

clay and clay lake bottom sediments toward the south end of the site. The beach gravel deposits, where in direct contact with the underlying fractured bedrock may provide the route of entry for contaminants into the bedrock aquifer. The silt and clay deposits to the south would serve to slow or prevent the direct downward migration of contaminants into the bedrock aquifer.

Little information is currently available on the hydrogeology of the area. The presence of the SCS mapped glacial till soils indicate that perched water table scenarios may occur. In this regard several shallow dug wells have been identified on **Figure 3**. Without measurement control we can only logically assume that ground water flow will mimic the overall topography with the ridge serving as a divide for ground water flow east and west.

Some limited information from available well logs has been assembled and included in **Appendix B**. Also included in **Appendix B** is the start of a cross section depicting well construction details and area lithology. Additional efforts will be required to complete both well log data collection and cross sectional depictions of the zones susceptible to contamination.

Water Quality Analyses

Historical results of the Horner and Dingler water quality analyses are summarized in **Table 1**. These results were obtained in summary form from the VDEC and have been entered into the LAG data base system for trend analysis. Results of the recent sampling by LAG are also included here. These trends are presented graphically as **Figures 5** and **6** for the Horner and Dingler well, respectively. Review of the data indicates that the greatest average BTEX contamination has been present in the Dingler well at 69.8 parts per billion (ppb), and in the Horner well at 32.1 ppb. In both wells the BTEX levels have remained relatively constant throughout the sampling period. The gasoline additive MTBE has not been detected in any of the samples to date. It should be noted that MTBE came into widespread use as an octane booster gasoline additive in the late 1970's.

The chromatograms of the recent Horner and Dingler analyses show comparable patterns. These patterns, however, are 'atypical' of gasoline contamination as we are familiar with from our chromatographic interpretations. This may, however, possibly be a severely weathered gasoline or petroleum based solvent. The chromatograms have been digitized and overlain of **Figure 7**. Copies of the formal analytical results and chromatograms are included in **Appendix A**.

Former Bennett's Garage

Presently Russ Horner owns the former Bennett's Garage and property. Mr. Horner purchased the property, garage, and residential house in August 1985 from 'Pudgy' Bennett, the previous owner. As a condition of purchase, Mr. Horner demanded that Mr. Bennett excavate and remove from the property the two on-site gasoline USTs.

On August 26, 1985 the two USTs located near the northwest corner of the garage were excavated and removed by Robinson's Inc. of Essex Junction. Both USTs were of single wall steel construction, unknown age, in a 'rusted' condition, but had no evidence of (gasoline) leakage. The underlying soil was described as 'a gravel type', and also displayed no evidence of gasoline leakage. One UST measured 50" x 10' with a capacity of 1,000 gallons, and the other UST was 64" x 18' with a 3,000 gallon capacity. Correspondence related to this tank pull is included in **Appendix C**.

The depth to bedrock in the former UST area is estimated to be about 12 to 15 feet. This was determined from the driller's well log for the Horner bedrock well drilled in 1985. It is located immediately to the north of the former USTs. Assuming that the USTs were covered with 3 feet of soil and that the depth to bedrock in the UST area was about 12 to 15 feet, then the bottom of the larger UST was at a depth of 8.5 feet or 3.5 to 6.5 feet above bedrock within a gravelly layer. The presence of several shallow dug wells in the area and the shallow depth to the ground water surface indicates that the USTs were at least partially submerged in the ground water for extended periods of the year.

Any overfills of the USTs, surface spillage, and UST or delivery piping leakage would almost certainly impact the shallow ground water system. Additionally, bedrock wells under pumping conditions disturb the natural ground water flow gradients and could induce downward leakage of shallow ground water and contaminants through the permeable gravel-type surficial soils into the underlying fractured and jointed quartzite bedrock.

Although the VDEC tank pull form stated that Robinson's, Inc. owned the USTs, President James A. Robinson stated in a letter (stamped December 18, 1992) to Bob Haslam of VDEC that the USTs were never owned by Robinson's, Inc. and that they only delivered gasoline to the USTs until 1978. Robinson's Inc. removed the USTs only as a favor to their former customer, 'Pudgy' Bennett, which thereby suggests that the former USTs were owned by 'Pudgy' Bennett (**Appendix B**).

Of concern with regard to subsurface contamination are on-site septic systems including leachfields and dry wells. The former Bennett's Garage and the Horner residence both discharged to a single leachfield located to the east of the garage. Presently only the Horner residence uses this leachfield, however during the site visit the sewer pipe was located and found to be disconnected. This pipe is situated in the back wall beside a 275-gallon above ground fuel oil tank in the basement of the garage. This area is accessible only by climbing down into the concrete 'work trench' in the garage. No floor drains were found in the garage, and no running water is currently present. However, an old concrete cistern that stored water pumped from the dug well is present but not in use.

The former practices for disposing of waste oils, fluids, and other liquids and waste from the former Bennett's Garage is unknown. It is possible that some wastes were disposed into the septic system and leachfield. If this may have occurred, then the leachfield area should be checked as a possible source of subsurface petroleum contamination.

The Monkton General Store located at the southern end of Monkton Ridge (as shown on **Figure 1** and **2**) also has two gasoline USTs located on-site. These USTs were installed in 1986 and are each 4,000 gallon capacity, steel, lined, and have cathodic protection and an active inventory monitoring system. These two USTs replaced two 1,000 gallon gasoline and one 500 gallon kerosene USTs that were all greater than 25 years old. Also presently stored on-site are two 250 gallon above ground kerosene tanks.

Conclusions

Ground water contamination by BTEX at elevated levels is currently present in the Russ Horner and Paul Dingler drilled bedrock drinking water wells. It was first detected in 1991. Both drilled wells have point-of-entry water treatment systems that remove the BTEX contamination from the water prior to use. During April 1992 the Martin residence smelled a petroleum odor in water from their drilled bedrock well. Since then their water has had no petroleum odors.

The Russ Horner property is the former location of Bennett's Garage, a business that serviced and repaired automobiles, and sold gasoline from two gasoline USTs and a pump island prior to 1985. When the USTs were excavated and removed in 1985, no gasoline contamination was found, however the USTs were rusted and the basal soil was described as a gravel type. When operating, the garage was connected to an on-site septic leachfield located east of the building. This leachfield is now used by the Horner residence.

The Paul Dingler residence has an underground fuel oil tank located on the north side of their house that provides fuel for their furnace. The age and construction of the UST is unknown. Other petroleum sources such as an abandoned fuel oil UST on the Bean property and many above ground fuel oil tanks are present in the homes in the vicinity. Other potential contamination sources such as on-site septic systems, dry wells, and leachfields exist in the Monkton Ridge area.

The BTEX contamination found in the Horner and Dingler wells, and possibly in the Martin well, appears to be most likely from either the old gasoline source (USTs, piping, or spillage) located at the former Bennett's Garage, or else from fuel oil tanks in the area. The petroleum contamination is probably entering the drilled bedrock wells by migrating down along the ungrouted annular space between the well bore and well casing, and past the end of the casing. Migration of the contaminants in the ground water may also be through the surficial gravel sediments and into fractures within the bedrock.

Recommendations

In order to determine the specific compounds present in the contaminated ground water from the Horner, Dingler, and possibly the Martin wells, ground water quality samples should be collected from each well and analyzed via EPA Method 8260 with identification of the 10 most dominant unidentified peaks. At the same time, ground water samples should also be collected from all the drinking water supplies that have been previously sampled to delineate the extent of bedrock contamination at this time. Several of the shallow dug wells should also be sampled in order to evaluate if there is shallow ground water petroleum contamination. These samples should be analyzed for BTEX and MTBE with chromatographic interpretation. Additionally, the samples should be assayed for coliform bacteria as another indication of contaminant migration pathways and potential sources of contamination.

Soil gas surveys should be conducted using the AMS soil probe and a photoionization detector in the vicinity of the Horner septic leachfield, the former UST and gasoline pump location at the former Bennett's Garage, as well as the Dingler fuel oil UST and dry well. This data should aid with the delineation of possible gasoline or petroleum contaminated soils. If petroleum contaminated soils are found to exist in the former UST or pump areas, then it may be warranted to have them remediated in situ or excavated from the site.

A more detailed picture of the subsurface through interpretation of available well logs should be developed. While this has been started during this preliminary evaluation, additional work beyond the preliminary scope of services will be

necessary to more accurately collect available well log data and to prepare it in a coherent and presentable fashion.

The two P.O.E. treatment systems on the Horner and Dingler wells should continue to be operated, maintained, and sampled on a quarterly basis to ensure their effective operation.

If you have any questions or comments with respect to our current findings and recommendations, please contact me or John Amadon at 802-453-4384. We have enclosed as **Appendix D** a cost estimate for implementing our recommendations. We look forward to discussing these issues with you and we appreciate the opportunity to work with your Division under the terms of our current contract.

Sincerely,

William D. Norland

William D. Norland
Hydrogeologist

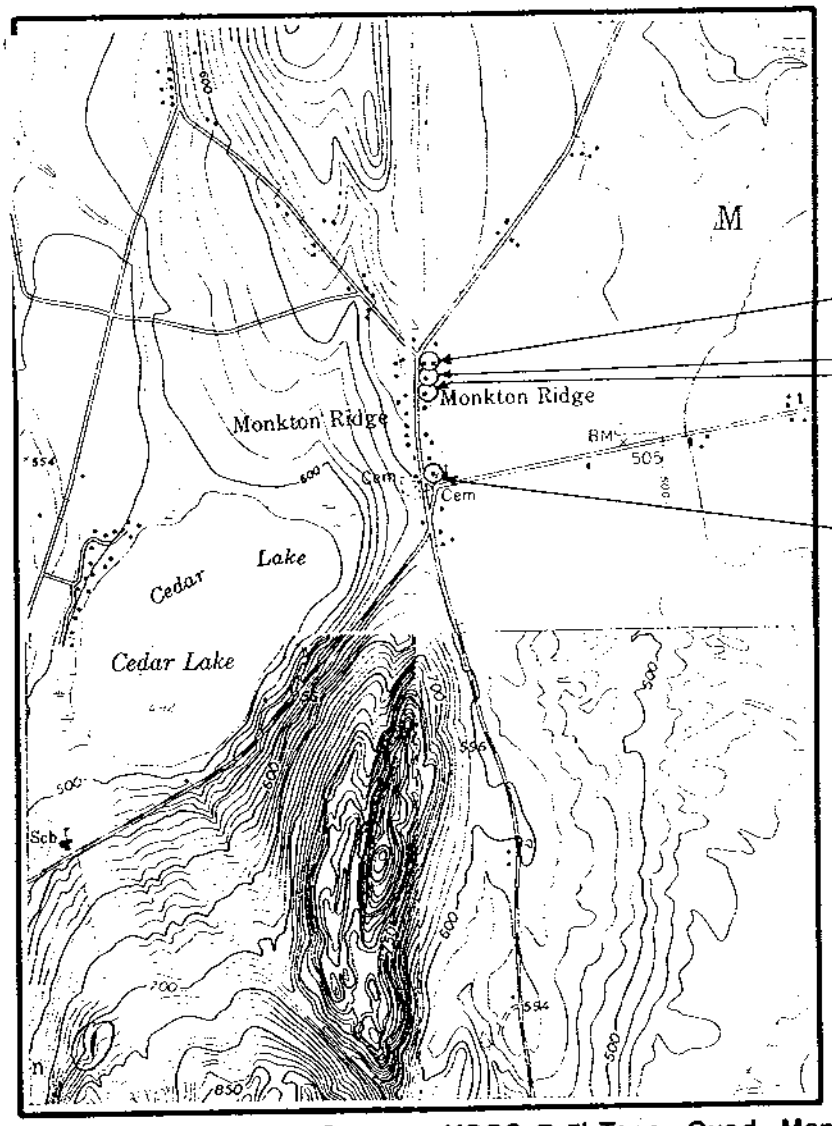
WDN/smd

Enclosures

Figure 1

GENERAL LOCATION MAP

Monkton Ridge, VT



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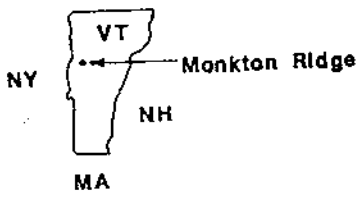
Source: USGS 7.5' Topo. Quad. Maps
Bristol, Mount Philo, Hinesburg,
and Monkton, VT



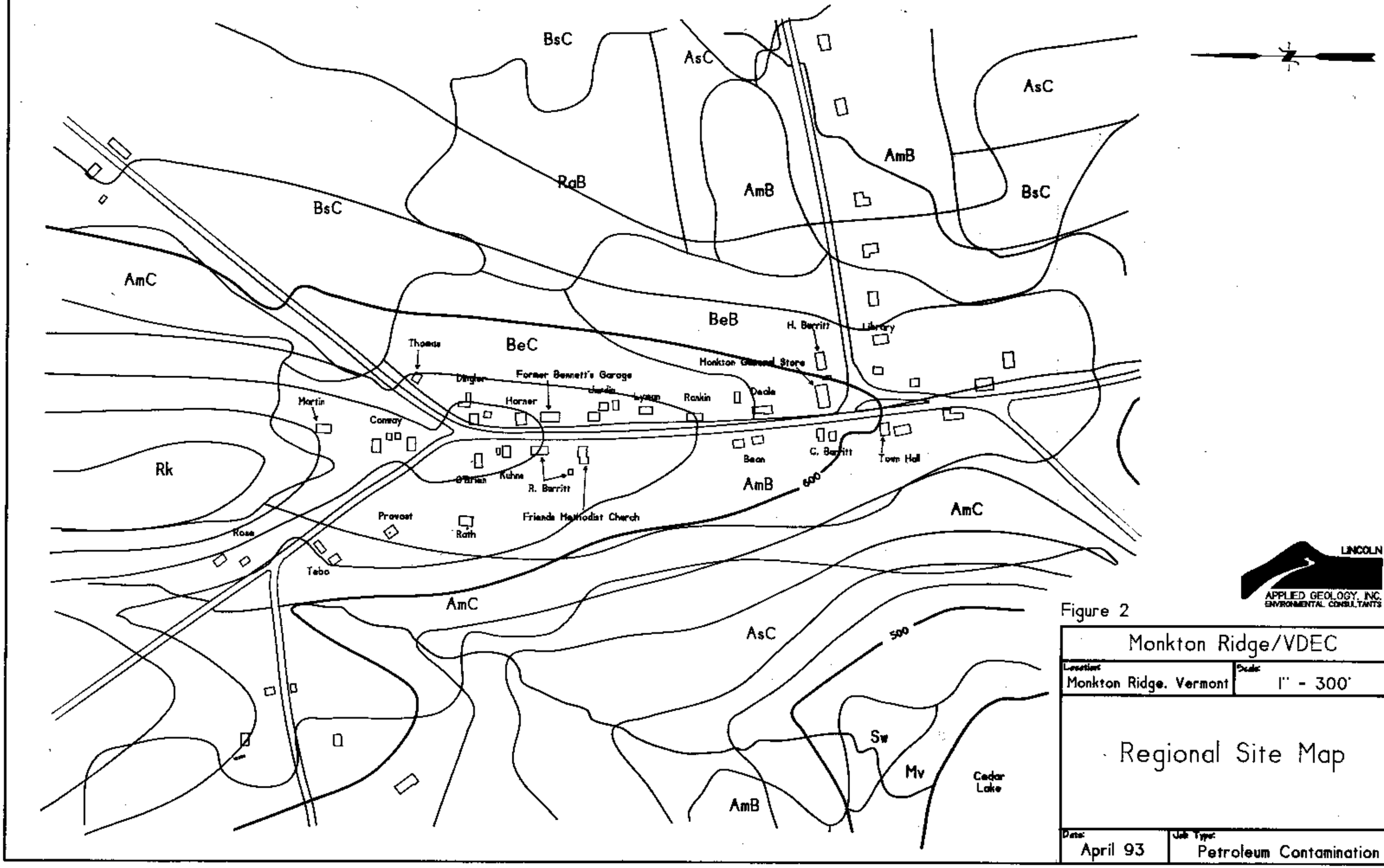


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Figure 2

Monkton Ridge/VDEC	
Location: Monkton Ridge, Vermont	Scale: 1" - 300'
Regional Site Map	
Date: April 93	Job Type: Petroleum Contamination

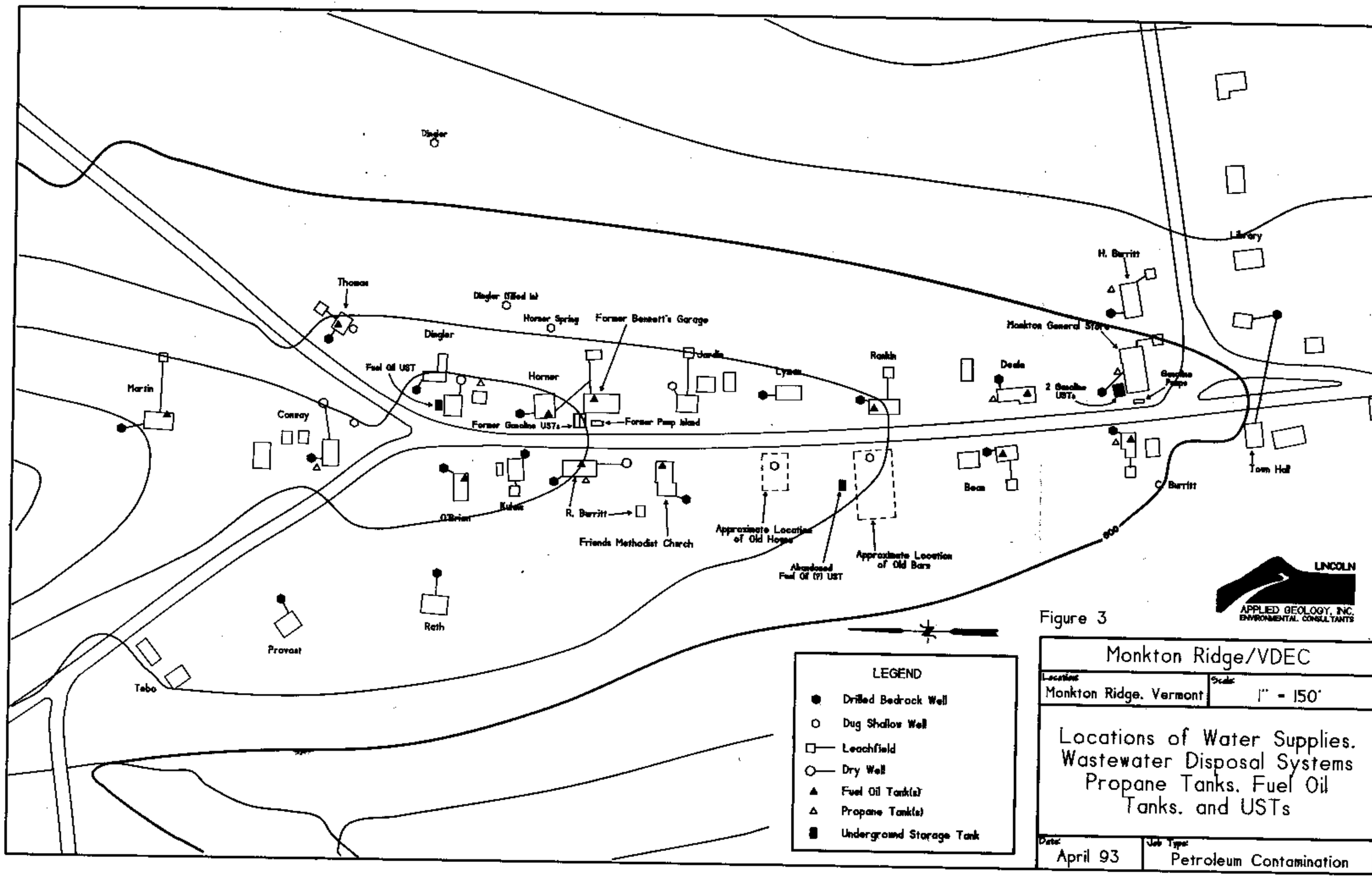


Figure 3

Monkton Ridge/VDEC

Location	Scale
Monkton Ridge, Vermont	1" = 150'

Locations of Water Supplies, Wastewater Disposal Systems Propane Tanks, Fuel Oil Tanks, and USTs

Date	Job Type
April 93	Petroleum Contamination

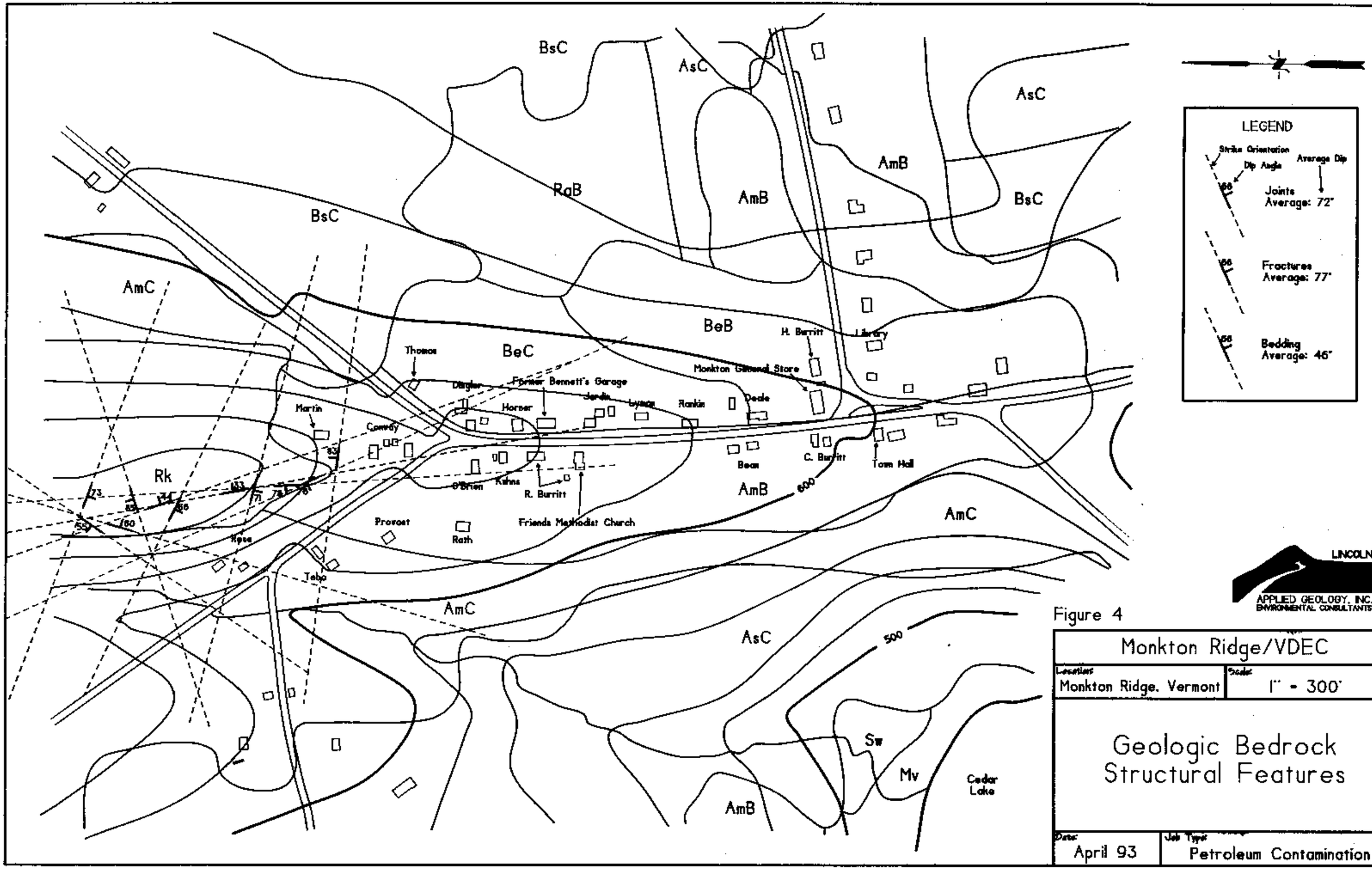


Figure 4

Monkton Ridge/VDEC

Location: Monkton Ridge, Vermont

Scale: 1" = 300'

Geologic Bedrock Structural Features

Date: April 93

Job Type: Petroleum Contamination

APPENDIX A

April 1993
Analytical Results

MicroAssays
of Vermont
The Technical Advantage

May 7, 1993

Mr. John Amadon
Lincoln Applied Geology
RD#1 Box 710
Bristol, VT 05443

John:

Here are the results of the 8020 + MTBE testing you requested on April 27th. The results are labelled by the following specimen numbers given to them in the laboratory:

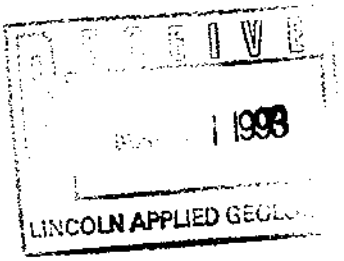
6428-1	"LAG1B"	Horner Spring
6428-2	"LAG2"	Dingler Well Influent
6428-3	"LAG3"	Horner Well Influent
6428-4	"LAG4"	Trip Blank

There are four chromatograms and four sets of quantitation results. Page 1 lists compounds and their concentrations that were found above their respective reportable limits by method 8020. Page 2 lists compounds and their concentrations that were found but below reportable limits by method 8020.

Please note that there is one extra (repeated) chromatogram that has three peaks labelled. These three peaks are the internal standard and surrogate analytes that were added to all specimens.

Respectfully,

Brendan McMahon, Ph.D.
Director, Chemical Services



P.O. Box 189, Montpelier, Vt. 05602 (802) 223-1468 FAX 223-8688

Chromatogram Plot C:\SATURN\DATA\LAG1B Date: 05/03/93 16:16:56
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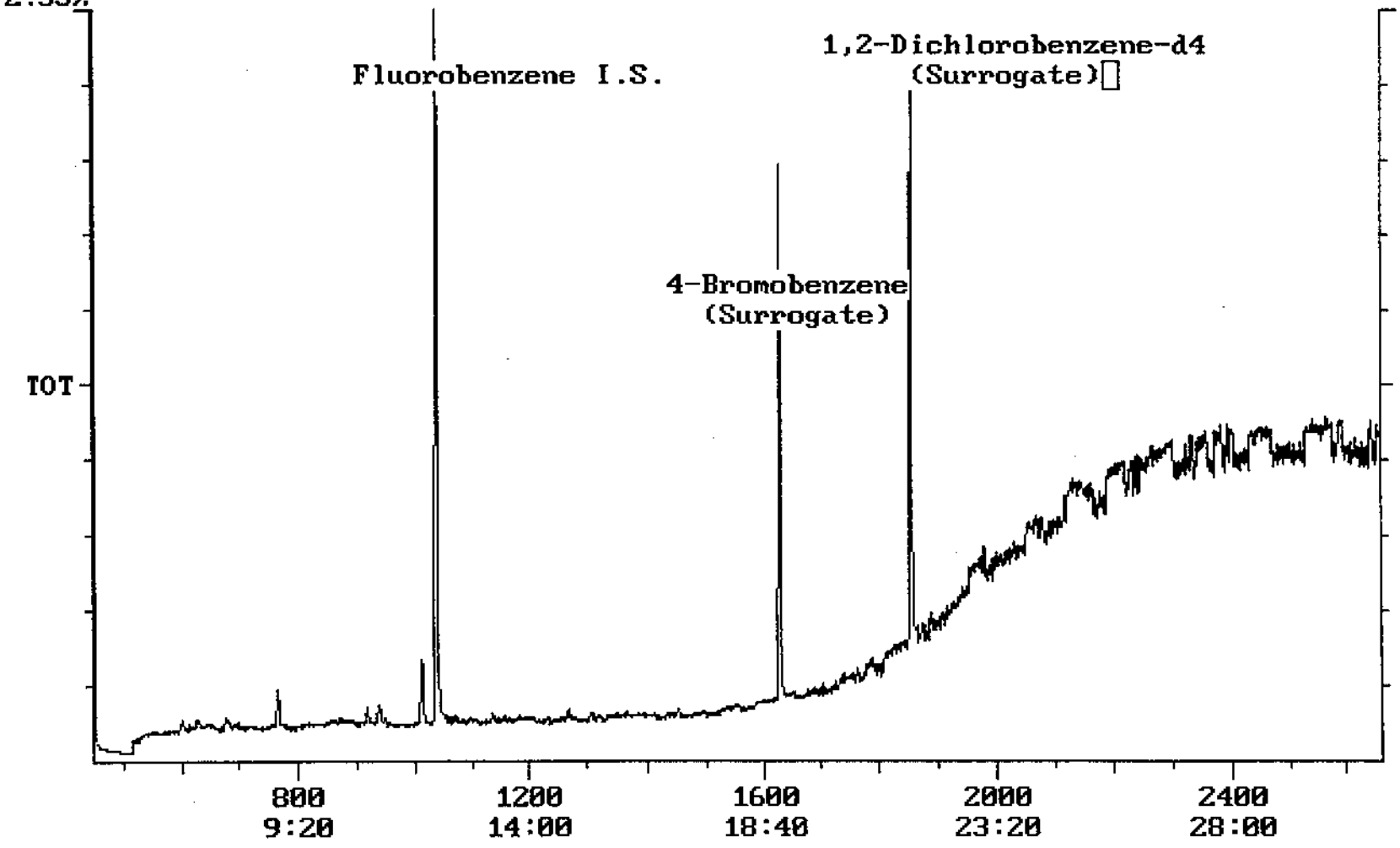
Plotted: 450 to 2656 Range: 1 to 2656 100% = 6419208



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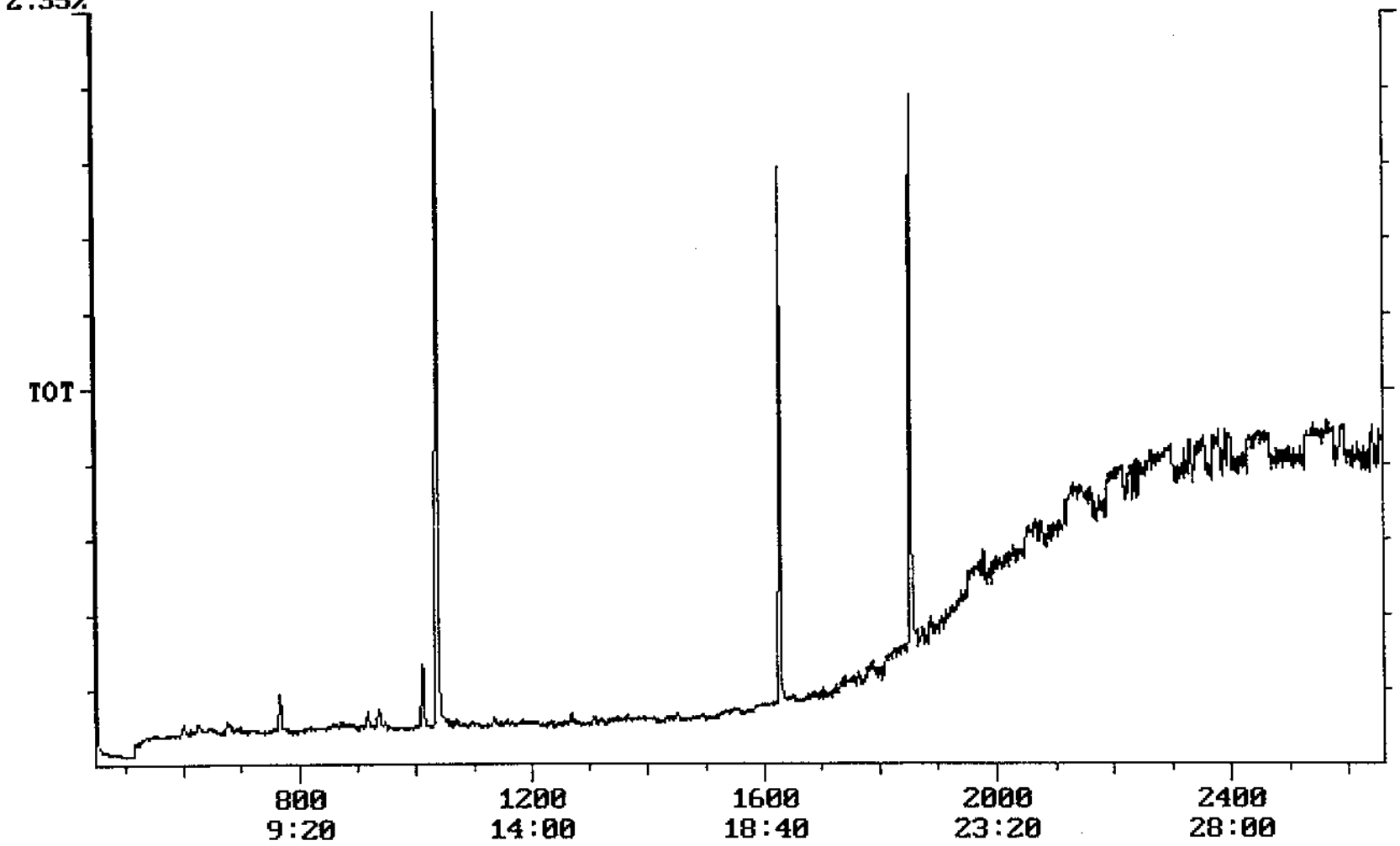
Plotted: 450 to 2656 Range: 1 to 2656 100% = 6419208



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Misc:

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Injected at: 05/03/93 16:16
Dilution Factor: 1.00
Instrument ID: SAT2

D File: CC8020.QCI
Title: P&T no dilution
Last Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

	Compound	R.T.	Q ion	Area	Conc	Units	Fit
1)	*Fluorobenzene (I.S.)	12.12	96.0	205533	1.00	ug/L	1000

* Compound is ISTD

QUANT REPORT

COMPOUNDS FOUND OUTSIDE OF LIMITS AND NOT REPORTED

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ata File: LAG1B.MS
Name: 6428-1
isc:

Quant Time: 05/03/93 16:16
Injected at: 05/03/93 16:16
Dilution Factor: 1.00
Instrument ID: SAT2

ID File: CC8020.QCI
itle: P&T no dilution
ast Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

AS NO.	COMPOUND	AMOUNT	MIN. AMOUNT	MAX. AMOUNT	AREA	MIN. AREA
	Benzene	0.01	2.00*	0*	261	0
	oluene	0.04	2.00*	0*	1158	0
	hlorobenzene	0.01	2.00*	0*	178	0
	Ethylbenzene	0.02	4.00*	0*	1119	0
	rtho-Xylene	0.01	2.00*	0*	415	0
	eta+para-Xylene	0.01	2.00*	0*	252	0
	1,3-Dichlorobenzene	0.01	4.00*	0*	248	0
	1,4-Dichlorobenzene	0.01	3.00*	0*	248	0

CAS NO.	COMPOUND	PUR	MIN. PUR	FIT	MIN. FIT	RFIT	MIN. RFIT
	enzene	0	0	0	0	0	0
	Toluene	0	0	0	0	0	0
	hlorobenzene	0	0	0	0	0	0
	thylbenzene	0	0	0	0	0	0
	ortho-Xylene	0	0	0	0	0	0
	meta+para-Xylene	0	0	0	0	0	0
	,3-Dichlorobenzene	0	0	0	0	0	0
	,4-Dichlorobenzene	0	0	0	0	0	0

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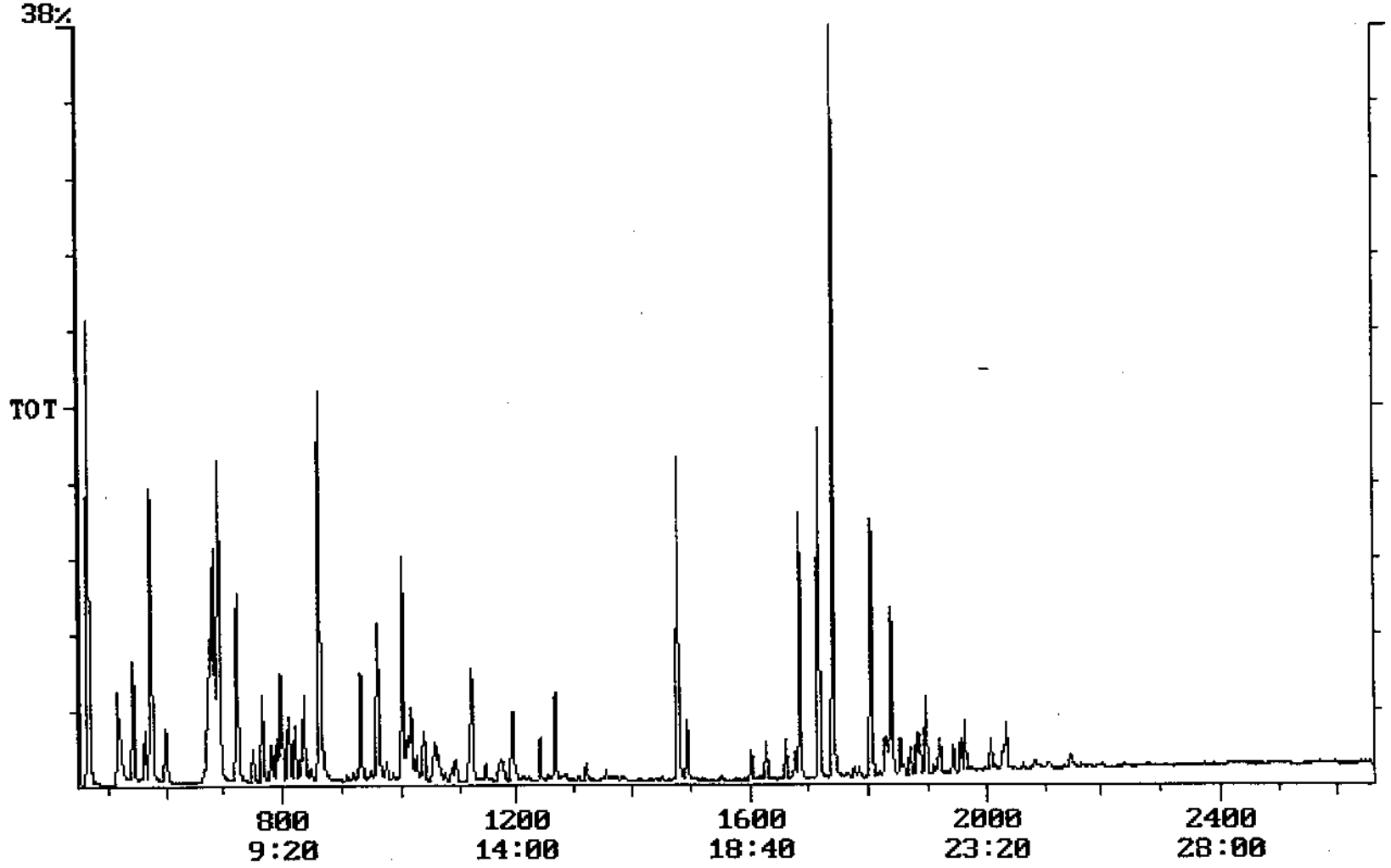

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Misc:

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Instrument ID: SAT2

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itle: P&T no dilution
Last Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

	Compound	R.T.	Q ion	Area	Conc	Units	Fit
1)	*Fluorobenzene (I.S.)	12.12	96.0	193805	1.00	ug/L	997
2)	Benzene	11.69	78.0	857640	26.95	ug/L	865
3)	Toluene	14.80	92.0	185399	6.55	ug/L	1000
4)	Ethylbenzene	17.25	91.0	1506106	31.50	ug/L	971
5)	ortho-Xylene	17.43	106.0	109608	3.34	ug/L	999

Compound is ISTD

QUANT REPORT

COMPOUNDS FOUND OUTSIDE OF LIMITS AND NOT REPORTED

Operator ID: MCMAHON
Output File: LAG2.1A2
Data File: LAG2.MS
Name: 6428-2
Misc:

ID File: CC8020.QCI
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Last Calibration: 05/05/93

Quant Time: 05/03/93 17:44
Injected at: 05/03/93 17:44
Dilution Factor: 1.00
Instrument ID: SAT2

Last Qcal Time: 05/02/93 18:29

CAS NO.	COMPOUND	AMOUNT	MIN. AMOUNT	MAX. AMOUNT	AREA	MIN. AREA
	meta+para-Xylene	0.20	2.00*	0*	3385	0

CAS NO.	COMPOUND	PUR	MIN. PUR	FIT	MIN. FIT	RFIT	MIN. RFIT
	eta+para-Xylene	0	0	0	0	0	0

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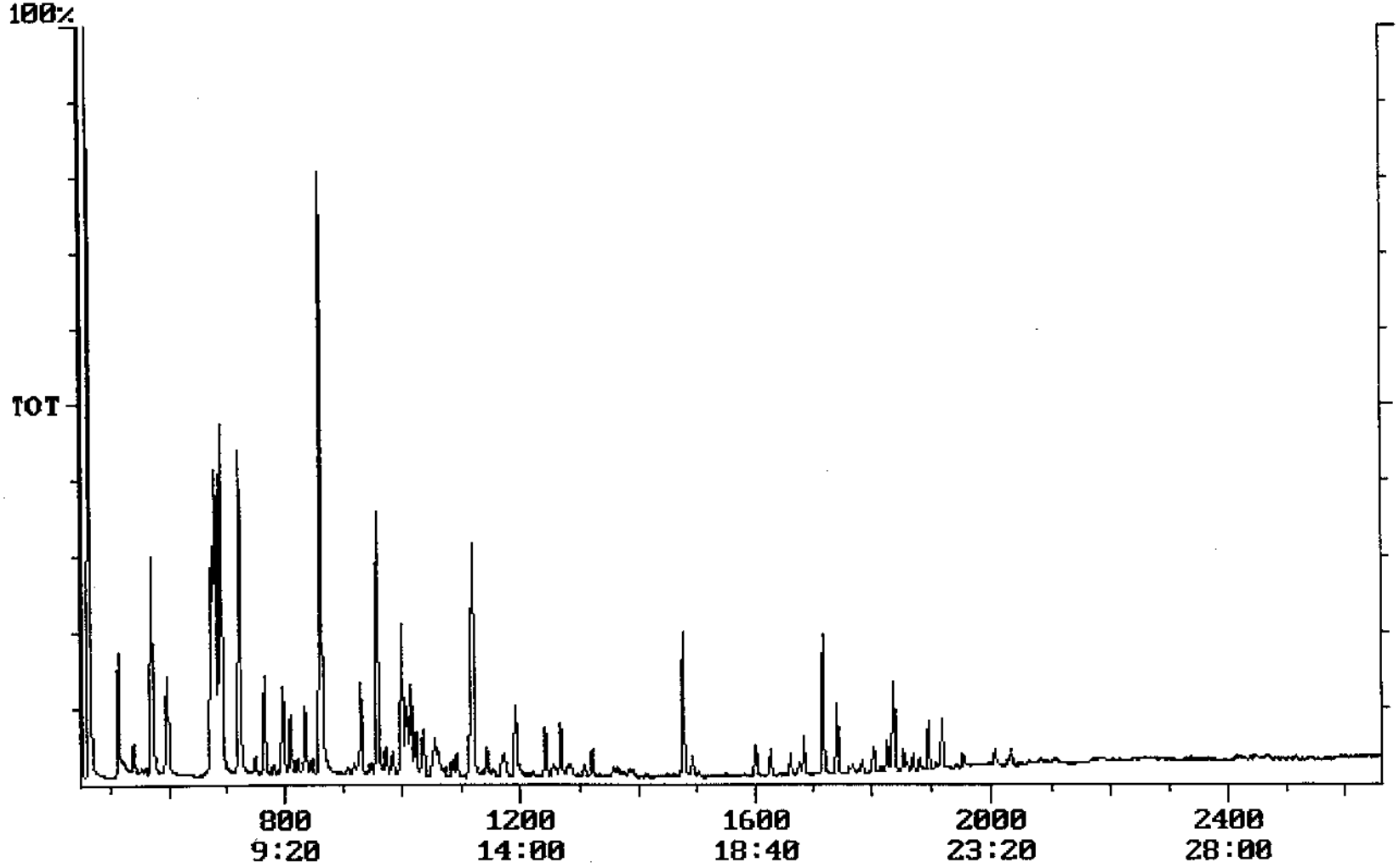

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Misc:

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Injected at: 05/04/93 08:53
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Instrument ID: SAT2

Last Qcal Time: 05/02/93 18:29

	Compound	R.T.	Q ion	Area	Conc	Units	Fit
1)	*Fluorobenzene (I.S.)	12.11	96.0	198129	1.00	ug/L	999
2)	Benzene	11.67	78.0	588701	18.90	ug/L	841
3)	Toluene	14.79	92.0	109974	3.68	ug/L	1000
4)	Ethylbenzene	17.23	91.0	681363	14.07	ug/L	973

* Compound is ISTD

QUANT REPORT

COMPOUNDS FOUND OUTSIDE OF LIMITS AND NOT REPORTED

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Misc:

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Instrument ID: SAT2

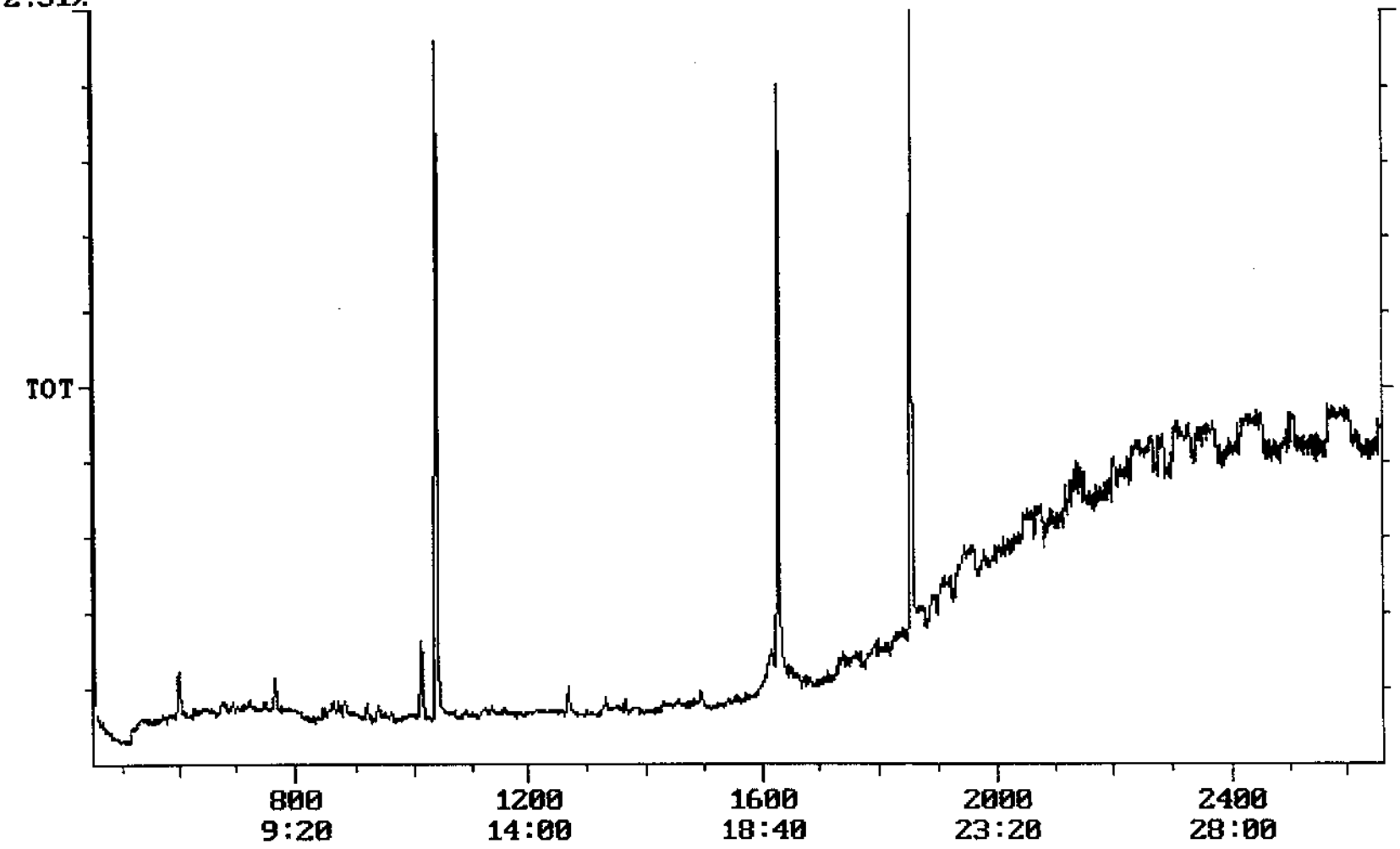
ID File: CC8020.QCI
Title: P&T
Last Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

CAS NO.	COMPOUND	AMOUNT	MIN. AMOUNT	MAX. AMOUNT	AREA	MIN. AREA
	ortho-Xylene	1.18	2.00*	0*	39026	0
	meta+para-Xylene	0.26	2.00*	0*	4591	0

CAS NO.	COMPOUND	PUR	MIN. PUR	FIT	MIN. FIT	RFIT	MIN. RFIT
	ortho-Xylene	0	0	0	0	0	0
	meta+para-Xylene	0	0	0	0	0	0

Chromatogram Plot C:\SATURN\DATA\LAG4 Date: 05/04/93 15:40:38
Comment: P&T
Scan No: 450 Retention Time: 5:15 RIC: 11687 Mass Range: 47 - 256
Plotted: 450 to 2656 Range: 1 to 2656 100% = 6053020
2.51%



Operator ID: MCMAHON
Output File: LAG4.1A2
Data File: LAG4.MS
Name: 6428-4
Misc:

Quant Time: 05/04/93 15:40
Injected at: 05/04/93 15:40
Dilution Factor: 1.00
Instrument ID: SAT2

ID File: CC8020.QCI
Title: P&T
Last Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

	Compound	R.T.	Q ion	Area	Conc	Units	Fit
1)	*Fluorobenzene (I.S.)	12.12	96.0	199599	1.00	ug/L	1000

* Compound is ISTD

QUANT REPORT

COMPOUNDS FOUND OUTSIDE OF LIMITS AND NOT REPORTED

Operator ID: MCMAHON
utput File: LAG4.1A2
ata File: LAG4.MS
Name: 6428-4
isc:

Quant Time: 05/04/93 15:40
Injected at: 05/04/93 15:40
Dilution Factor: 1.00
Instrument ID: SAT2

ID File: CC8020.QCI
itle: P&T
ast Calibration: 05/05/93

Last Qcal Time: 05/02/93 18:29

AS NO.	COMPOUND	AMOUNT	MIN. AMOUNT	MAX. AMOUNT	AREA	MIN. AREA
Benzene		0.02	2.00*	0*	700	0
oluene		0.13	2.00*	0*	3978	0
thylbenzene		0.05	4.00*	0*	2341	0
ortho-Xylene		0.04	2.00*	0*	1198	0
eta+para-Xylene		0.02	2.00*	0*	374	0

AS NO.	COMPOUND	PUR	MIN. PUR	FIT	MIN. FIT	RFIT	MIN. RFIT
enzene		0	0	0	0	0	0
Toluene		0	0	0	0	0	0
thylbenzene		0	0	0	0	0	0
rtho-Xylene		0	0	0	0	0	0
meta+para-Xylene		0	0	0	0	0	0

MICROASSAYS OF VERMONT

Page _____ of _____

Chemical Analysis Sample Submission Form

Submitting Party or Agent:
Name: Lincoln Applied Geology
Address: _____

MAV Control No.: _____

Date: _____
Phone: _____

Specimen Information and Sample List

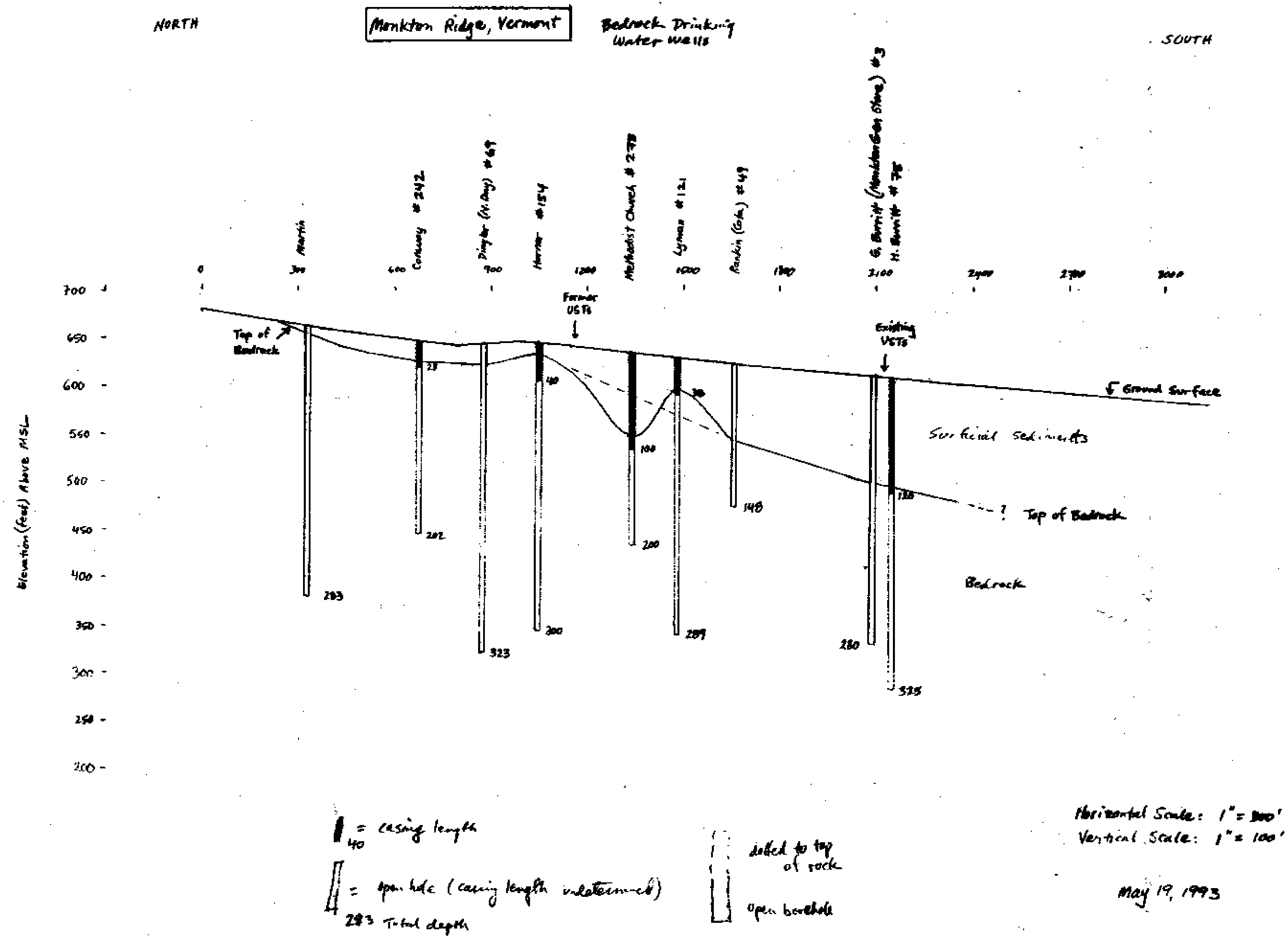
Sample Location/ Specimen No.	Sample Date	Sample Time	Sample Type Water/Other	Analysis Required
DINGLER	4/26/93		VOC - H_2O	8020 BTEX
				meth B - Ether.
HORNER	4/26/93		VOC - H_2O	

Chain-of-Custody Record

Relinquished by: *Signature*	Received by: *Signature*	Date/Time	Relinquished by: *Signature*	Received by: *Signature*	Date/Time
[signature]	[signature]	4/27/93 8:15			

APPENDIX B

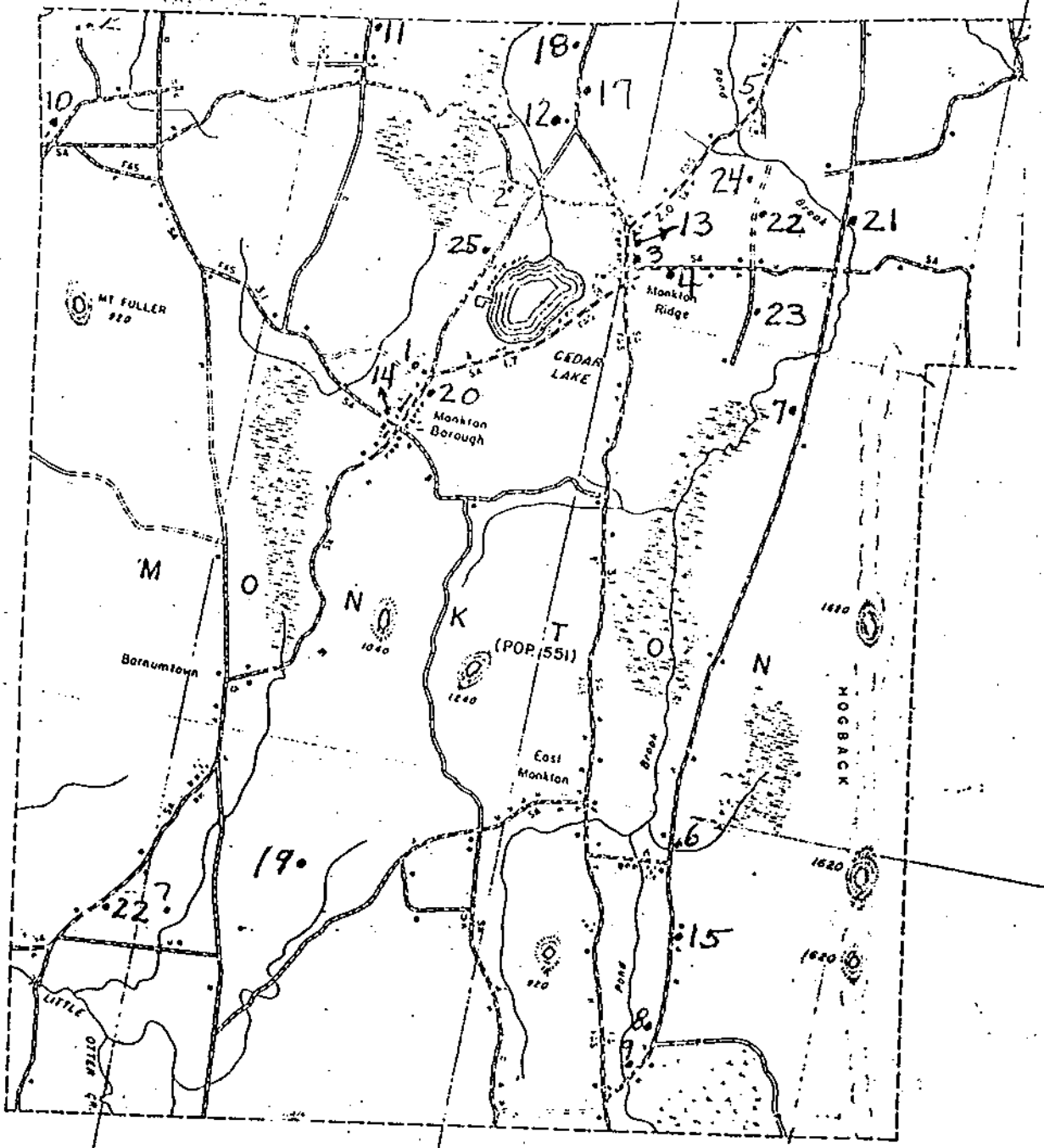
Well Logs and Preliminary Cross Sections


NORTH
Monkton Ridge, Vermont
Bedrock Drinking Water Wells
SOUTH
Martin
Conway #242
Dingler (H. Day) #69
Harter #154
Methodist Church #278
Lyman #121
Rankin
G. Burritt
H. Burritt
0
300
600
900
1200
1500
1800
2100
2400
2700
3000
700
650
600
550
500
450
400
350
300
250
200
Elevation (feet) Above MSL
Top of Bedrock
Former USTs
Existing USTs
Ground Surface
Surficial Sediments
Top of Bedrock
Bedrock
27
40
100
30
130
283
242
323
300
200
289
148
280
325
= casing length
= open hole (casing length undetermined)
283 Total depth
drilled to top of rock
open borehole
Horizontal Scale: 1" = 300'
Vertical Scale: 1" = 100'
May 19, 1993

#49 Cota?

		Yield	Total Depth	Depth to Rock	Casing	Static	
3	Guy Burrell (Mountain General Store)	12	280	110	—	70	
15	Agnes Day (now Kuhns)	10	300	38	—	80	
1	James Lyman	3	289	35	38	—	
154	Russ Horner	10	300	12	40	—	Why 28' of casing?
2	United Methodists	25	200	86	100	20	
20	Charles Conway (Paul Dingler)	3½	202	22	28	—	
6	Neil Day	0.5	323	21	—	—	
49	R. Cota (Rankin)	3	148	79	—	—	
13	Chris Burritt	5.5	235	135	147	20	
2	Bill Tebo	15	201	86	90	—	
75	Guy Burritt (Hope)	10	325	112	120	30	

MONKTON
WELLS 1-25



#22 above also

WR #71
1974

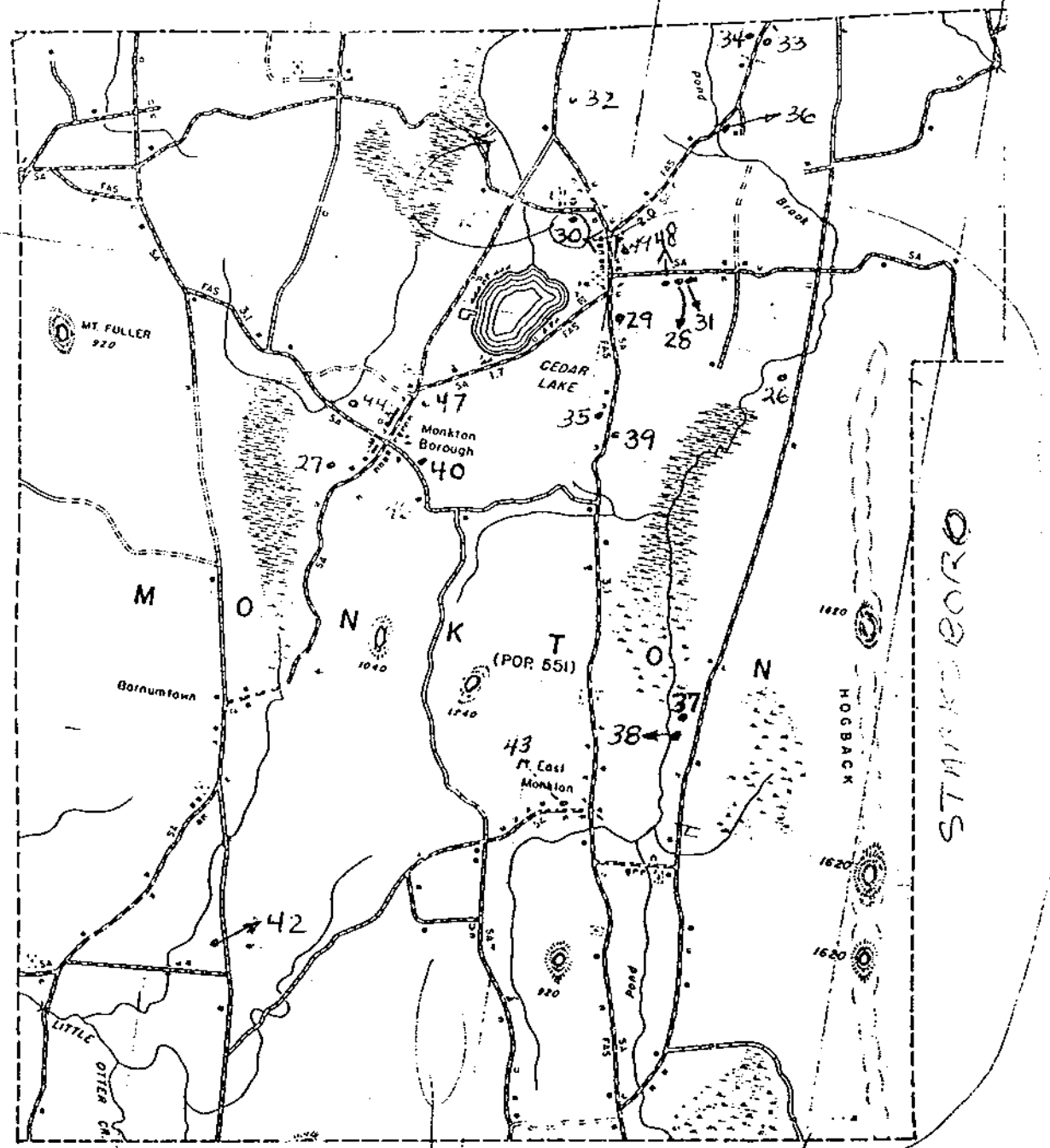
TOWN: MONKTON

WELL NOS.: 1 - 25

BASIC WELL DATA

Well No.	Well Owner		Yield (gpm)	Total Depth (feet)	Depth To Bedrock (feet)	Static Water Level	Other Info
1	Robert Shea	14A7	10	215	4	15	12
2	Charles Morgan		2⅓	740	14	--	18
3	Guy Burritt	13D3	12	280	110	70	18
4	Mr. & Mrs. George Cota	13D3	8	320	Gravel	55	18
5	James Smith	13D3	20	253	234	30	36
6	Alfred Martin	14C2	3½	98	40	15	51
7	Levi Martin	14C1	100	106	Gravel	10	51
8	Robert Menard	14C2	1½	57	12	20	12
9	Mr. Menard	14C2	2	198	20	23	7
10	Lorraine Blair	13B6	45	190	35	12	18
11	Dr. Burt Hamrell	13B9	1	475	5	--	8
12	Francis Garrow	13B9	6	148	Gravel	--	8
13	Agnes Day	13D3	10	300	38	80	18
14	Donald Oatley	14A7	15	330	10	Flowing	18
15	Ashley Meredith	14C2	2	98	Hardpacked silty sand	25	2
16	Jary Crowell		5	360	2	--	51
17	Peter Norris	13B9	2	320	100	--	50
18	Edgar V. Baker	13B9	3	348	48	--	8
19	Richard Stearns	14A8	12	3 0	3	18	7
20	Mr. Towne	14A7	16	58	6	8	12
21	Armond Caron	13D3	11	122	10	--	8
22	Mortimer Prevost	13D3	10	300	75	45	18
23	C. Hoague	13D3	60	190	Stones, Gravel	9	18
24	R. Kirk	13D3	50	225	130	40	18
25	Jerry Hatch	13B9	5	303	126	35	36

MONKTON WELLS
26-5C



Davis well + one other

See report for map:
(#50)

WR #71
1974

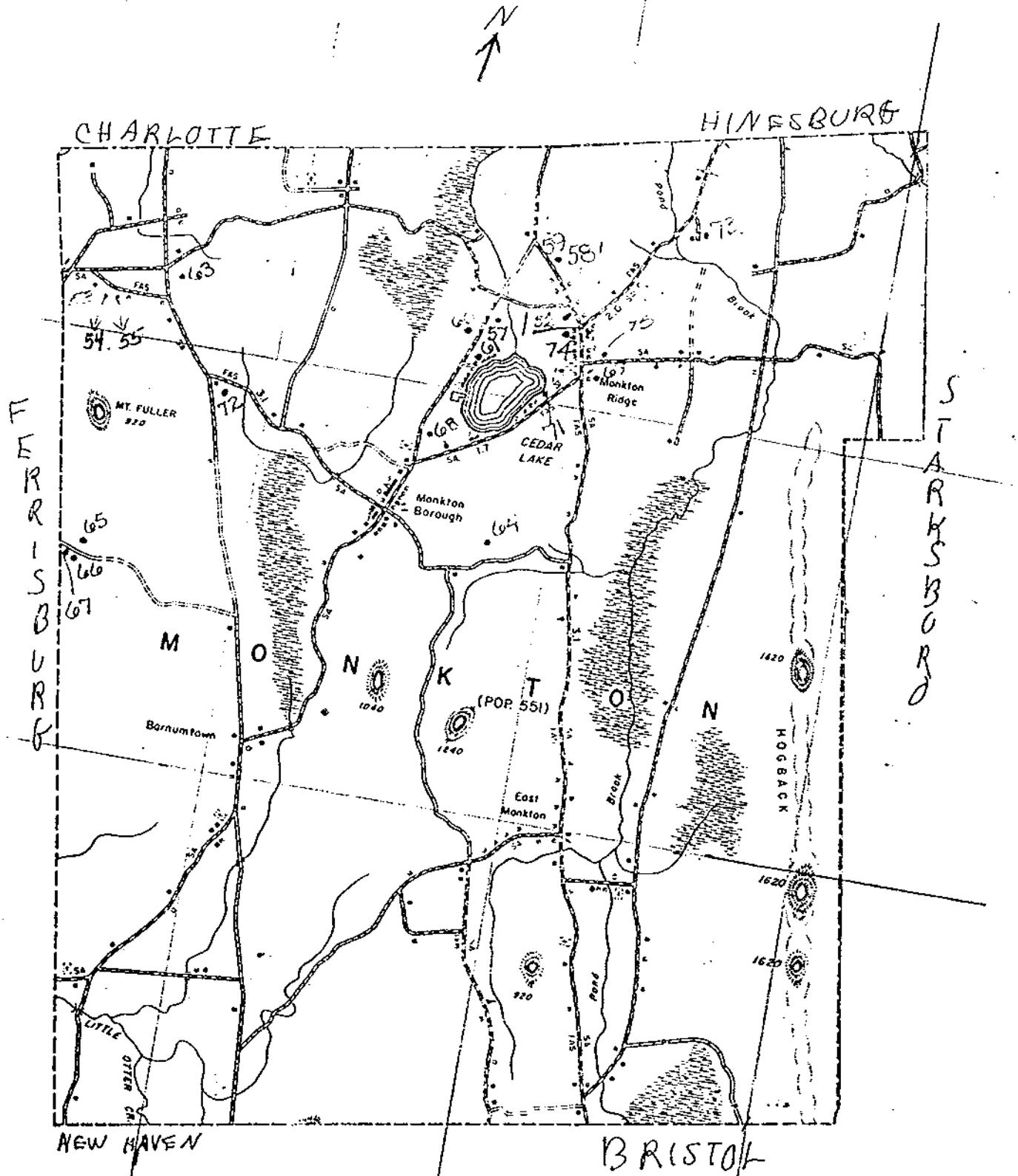
TOWN: MONKTON

WELL NOS.: 26-50

BASIC WELL DATA

Drillers No.

Well No.	Well Owner		Yield (gpm)	Total Depth (feet)	Depth To Bedrock (feet)	Static Water Level	~~other~~ Info
26	FRANCIS PROVOST	14C1	1½	322	46	15	36
27	PETER WENDLAND	14A7	5½	660	3	190	18
28	MONKTON FIRE STATION	13D3	60	375	362	40	18
29	WALTER JONES	13D3	1	510	215	40	18
30	LEON LATRELL	13E7	9	250	240	56	18
31	KENNETH LA FOUNTAIN	13D3	9	315	(?) 92	95	18
32	ROGER FORTIN, JR.	13B9	8	405	230	30	18
33	CLAYTON WARNER	13D3	4	400	50	40	42
34	WILLIAM ROSE	13D3	5	225	55	30	42
35	IRVING ROSCOE	14C1	25	330	160	62	18
36	IRWIN STARK	13D3	7½	235	127	flowing	18
37	RONALD BOUCHER	14C1	60	175	6	30	18
38	DEL BASINGER	14C1	30	200	16	26	18
39	RALPH MEADER	14C1	7½	495	115	56	18
40	DAVID STEWART	14A7	35	100	18	44	18
41	RUSSELL PRESTON	13B9	60	275	236	85	18
42	RAY BEAVER	14A8	1⅓	223	5	—	8
43	**RICHARD OWEN**	14C1	**50**	**46**	**12**	**10**	**2**
44	Robert Hall	14A7	5	300	10	6	50
45	[illegible]	13B9	120	175	83	[illegible]	18
46	Arthur Sterns	14A7	2	525	40	100	18
47	[illegible]	14A7	3	465	89	4	18
48	Kenneth LaFountain	13D3	1½	675	146	90	12
49	Robert Cota	13D3	3	148	79		8
50	Bill Bowers		30	230	200	20	42



MONKTON WELLS
51-75

WR #71
1974

TOWN: MONKTON

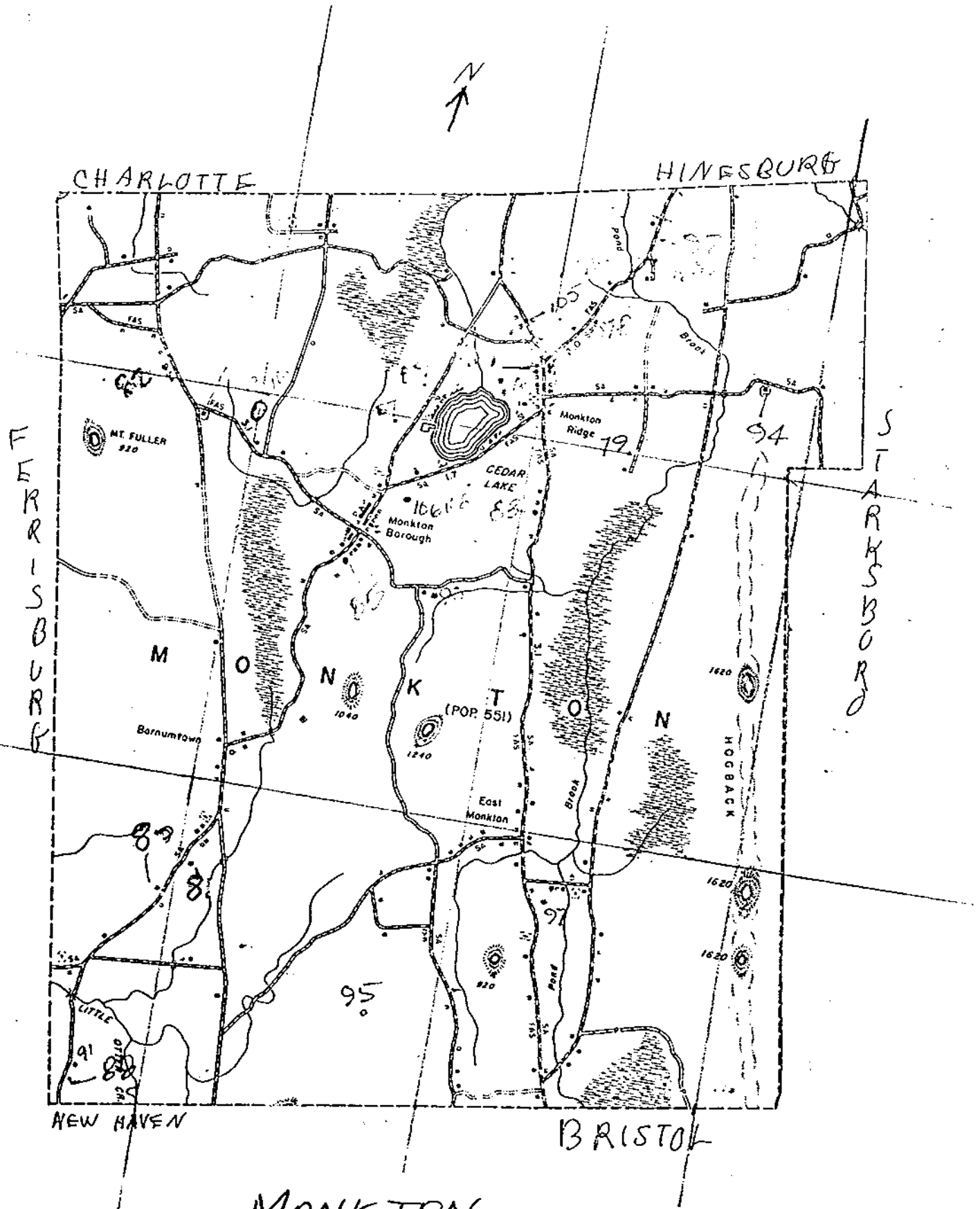
77 - 79

WELL NOS.: 51-75

BASIC WELL DATA

/CASING

Well No.	Well Owner		Yield (gpm)	Total Depth (feet)	Depth To Bedrock (feet)	Static Water Level	Other Info
51	ANDY WARREN		½	498	73		8
52	[illegible]	13B9	[illegible]	[illegible]	[illegible]		8
53	M/M HAROLD TORRE	13A6	6	130	6	12	18
54	M/M MARK E. SHEFFINGTON	13B6	9	100	4	Flows	18
55	M/M WILLIAM B. TALBOLT		6	200	52	32	18
56	VICTOR BATEMA		20	235	185		8
57	OLIN KIMBALL	13B9	20	174	86		8
58	ED GERMON	13B9	30+	74	GRAVEL		8
59	VINCENT BONT	13B9	2	248	65		8
60	ALFRED SQUIRE	13B9	6	228	12		8
61	JOHN JONES	13B9	8	148	55		8
62	DRE ITHYA SCHOOL		8	126	49		8
63	FRANK INGHAM	13B6	20	200	7	41	42
64	RICHARD SMITH	14A7	4	500	5	150	42
65	EDWARD ABARE	14A4	½	135	13	50	2
66	RODERICK BOUTIN	14A4	21	28	7	16	2
67	DANIEL HUGAR	14A4	4	69	3		2
68	WILLIAM MINER	14A7	2½	115	70	12	2
69	NEIL DAY	13D3	½	323	21		8
70	HENRY FISCHER		9	123	62		8
71	KEN LARKIN	13B9	7	175	40		8
72	WALT BENNETT	14A4	10	200	75	5	42
73	ROLAND DECARREAU	13D3	1	299	8		8
74	BRASURE Const. Co. (JEFF BRASURE)	13B6	1	314	200/20	30	18
75	GUY D. BURRETT	13D3	10	325	112/20	30	18



MONKTON

76 - 100

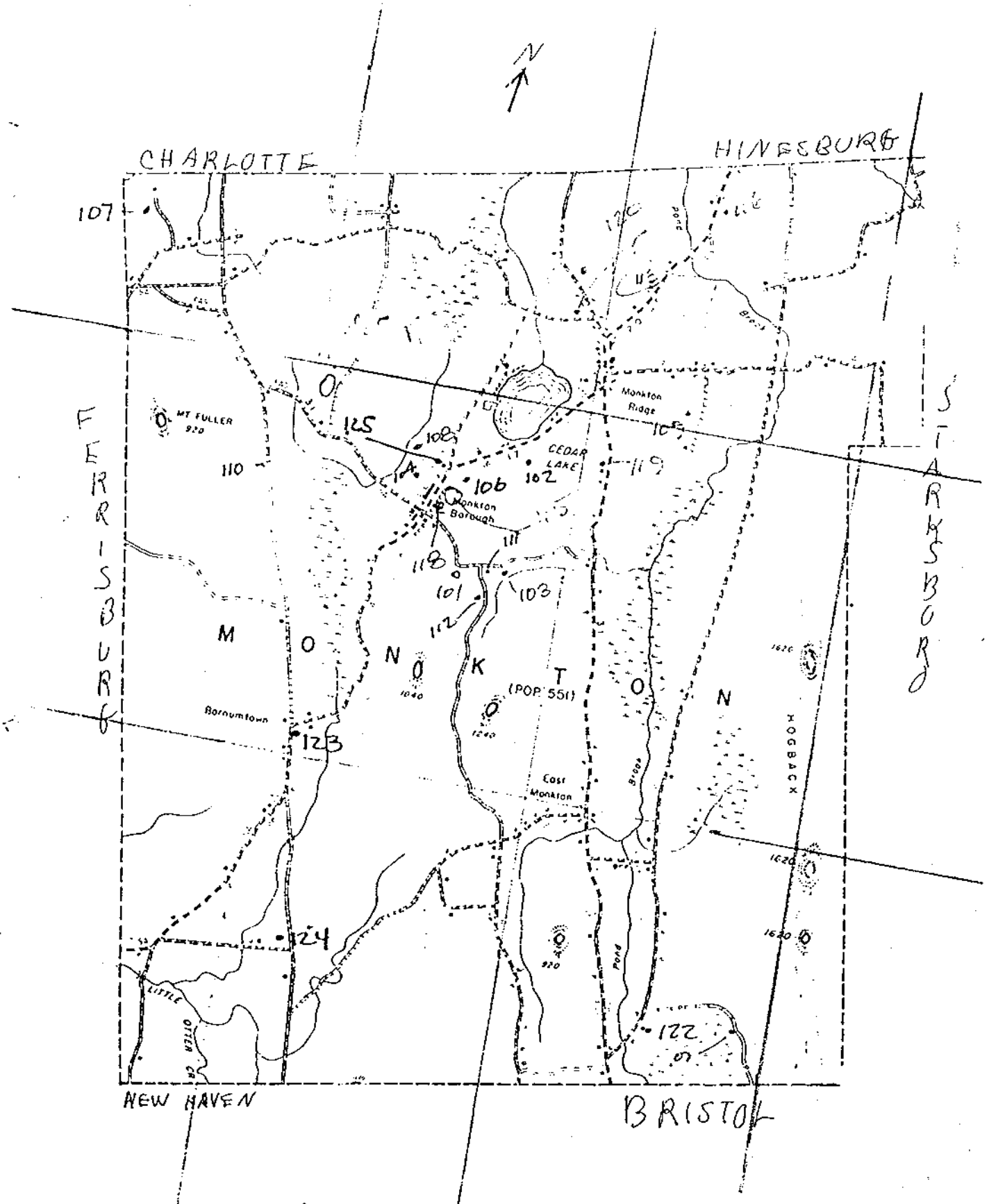
WR #71
1974

TOWN: MONKTON

WELL NOS.: 76-100

BASIC WELL DATA

Well No.	Well Owner	Yield (gpm)	Total Depth (feet)	Depth To Bedrock (feet)	Static Water Level	Driller No.
76	GEORGE PALMER 1303	5	123	55/84		8
77	JAMES LEAVITT 1389	2½	198	10/59		8
78	WILLIAM BIRD 13[illegible]	2	490	122/130	80	18
79	ALON E. GIGURE 1303	5	230	44/48	35	18
80	THOMAS H. STEADMAN 14A5	2½	445	3/20	60	18
81	LAWRENCE ZENO 14A[illegible]	1	475	30/40	82	18
82	Philip J. Lombardi 1386	12	205	70/73	2	18
83	Curtis Montgomery 14C1	5	150	10/21	Flows	18
84	GLENN E. DURFEE, Jr. 13[illegible]	20	220	200/220	10	18
85	David Boyer 14A7	3	525	5/21	50	18
86	Toney Carnoo	7½	300	20/56	14	18
87	GEORGE JEFFERIES 14A1	7	350	60/70	35	42
88	LEO LAROCQUE 14A5	15	255	20/24	40	18
89	MARK BARRITTO MICHELLE MALZAC 1389	6	230	20/30	27	18
90	Cal SCHNEIDER 14A7	2	100	90/90	0	91
91	Richard Burris 14A5	40	362	1/20		8
92	JOE VINCENT 1303	10	180	65/80	20	18
93	WENDELL BRACE 14A1	20	155	94/100	F 6	18
94	HENRY PHILIPS 1303	10	410	78/90	20	18
95	ERIC DAVIS 14A8	0	300	40/93	—	42
96	ALBERT & DONNA LAROCK	4	200	7/20	20	42
97	RICHARD RAMSEY 14C2	8	[illegible]	Sewage		108
98	DAVID EDWARDS-DURGIN 1303	6	124	51/81		8
99	MRS. EL-MINA PIKE 1303	5	148	41/83		8
100	Jenny Roberts 1389	2	249	6/35		8



MONKTON

101 - 125

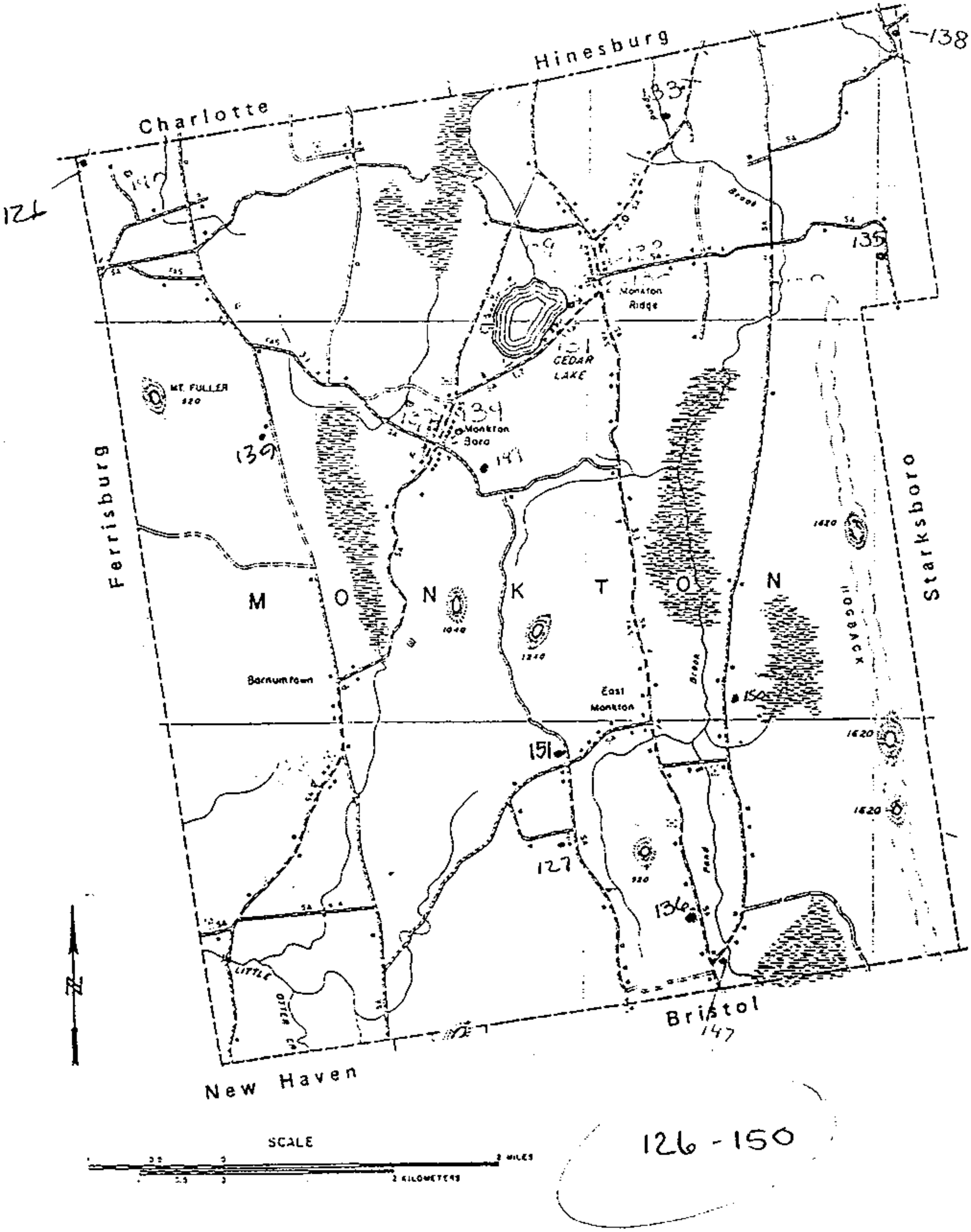
MAP PREPARED BY THE DEPARTMENT OF WATER RESOURCES FROM HIGHWAY DEPARTMENT MAP.

BASIC WELL DATA

TOWN MONKTON

WELLS 101 - 125

NUMBER WR	USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMARKS
101		KEN D'AVINGNON	14A7	6	350	0	20	19	0	42	
1980 102		JERE URBAN	14A7	4½	145	60	71	15	0	51	
103		CAL SCHNEIDER	14A7	3	100	85	90		9	91	
104		JEFF STEWART	14A7	10	85	17	20	5		91	
105		ALFRED GRABSKI	13C9	3½	106	68	68½		0	2	
106		JOE BLANCHETTE	14A7	2	330	79	85	30	0	18	
107		ROBERT PECOR	13E6	6	110	GR	105	55	1	36	
108		WILLIAM FORD	14A7	2	265	129	215		1	8	
109		CHESTER PECOR	1303	3	173	68	68		1	8	
110		JOHN BENNETT	14A4	20	250	2	20	25	1	42	
111		BETSY SCHNIEDER	14A7	20	200	35	45	45	1	42	
112		MICHAEL BUSHEY	14A7	1	325	6	18	0	1	68	
113		HUGH LONG	1303	100	260	G	257	47	2	42	G
114		FLOYD TEMPLE		6	150	15	48		2	108	
115		ANDREW SNELLING	14A7	30	175		50	16	2	42	
116		DAVID BOULANGER	1303	2	300	42	60	34	2	42	
117		WALTER BENNETT	13B9	60	250	57	60	24	2	42	
118		ANDREW SNELLING	14A7	30	175	29	50	16	2	42	
119		BOB EVERTS	14C1	10	150	23	40	3	2	42	
not WC 120		PHIL FORTIN	13B9		239		222		2	8	
121		JAMES LYMAN	1303	3	289	35	38		2	0	
122		PETE HANSEN	14C2	6	350	14	20	4	3	42	
123		Warren Stearns	14A7	30	200	G	200		83	42	
124		Joe Provencha	14A8	30	225	47	53		83	42	
125		Joe & Jane Cassarino	14A7	20	202	26	35	15	83	36	


Charlotte
Hinesburg
Ferrisburg
Starksboro
New Haven
Bristol
M O N K T O N
Monkton Ridge
CEDAR LAKE
MT. FULLER
Monkton Boro
Barnumtown
East Monkton
HOGBACK
126
138
133
135
139
151
127
136
147
SCALE
2 MILES
2 KILOMETERS
126 - 150

BASIC WELL DATA

TOWN Monkton

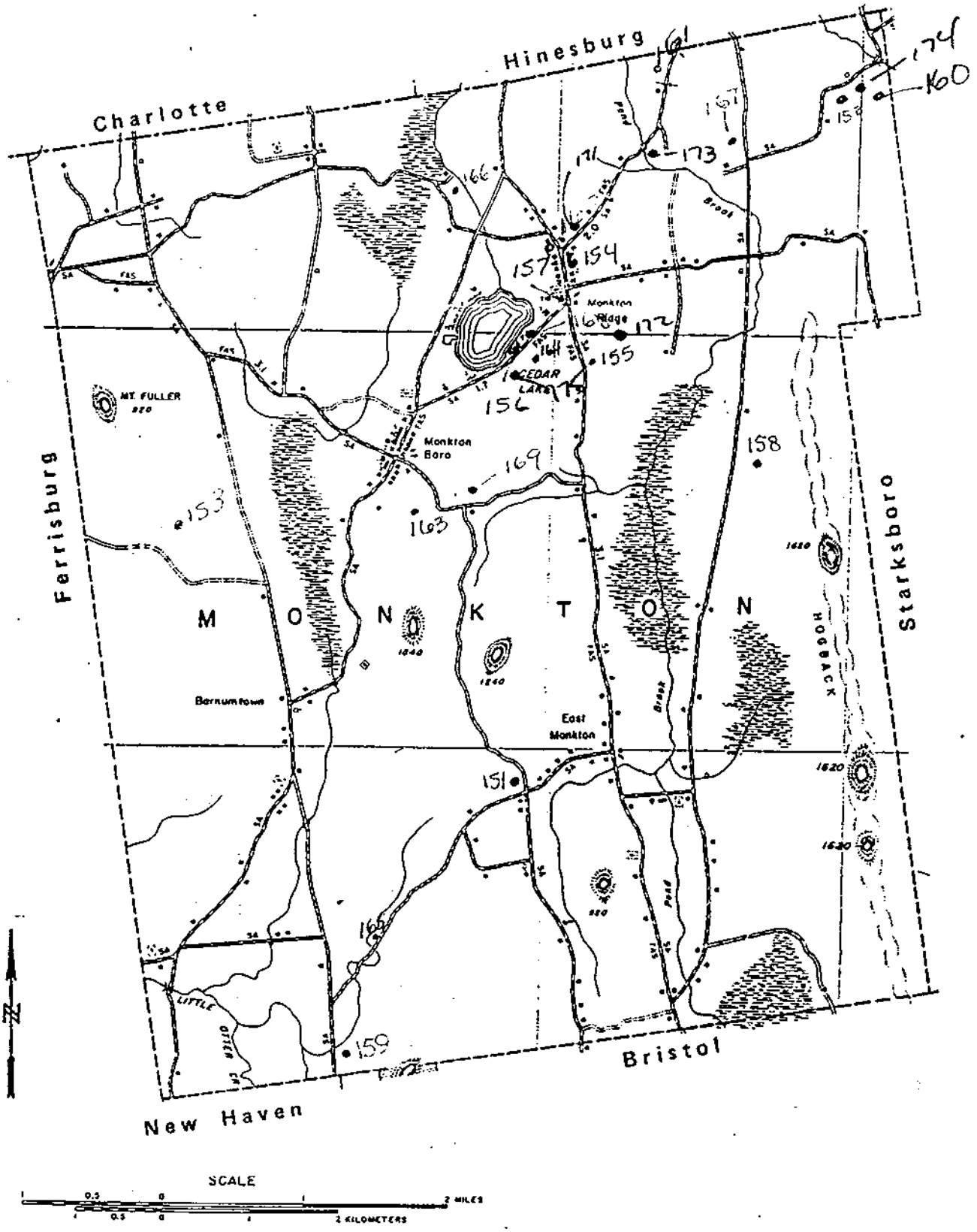
WELLS 126 - 150

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET *	STATIC WATER LEVEL	YR DR	DRILL NO.	REMAR
126		Charles & Debra Parlantonia	13B6	2	452	2	20	8	83	36	
127		Francis Brace	14A8	3 1/2	202	39	45		82	36	
128		Tom Warner	13D3	15	300	76	78		83	42	
129		John Dillon	13B9	10	200	127	135	17	83	68	
130		Stephen Weston	13D3	10	235	118	125	50	83	68	
131		Shirley Flood	14A7	1/2	325	80	96	12	83	68	
132		Chris Burrett	13D3	5 1/2	235	135	147	20	83	68	
133		Ray Chadwick	13D3	3	247	40	81		83	8	
134		Don Meals	14A7	4	203	19	27		83	8	
135		Jeff Phillips	13D6	4	249	41	50		83	8	
136		Robert Jenson	14C2	4	249	46	71		83	8	
137		Leslie Mahoney	14A7	9	355	150	161		83	8	
138		David Mitchell	13D6	12	300	115	218		83	42	
139		RICHARD OLIVER	14A4	1 1/2	475	6	20	50	78	42	
140		Robert Rotax	13B6	1	403	10	19		84	36	
141		Royce Heir	13B6	5	123	60	71/69		84	8	
142		Richard and Norma Norris	13B9	50±	270	56	222/220		84	8	SEE 143
143		Gerald Menard	14A7	25	197	140	181/179		84	8	
144		David Boyd	14A7	30	198	58	64/62		84	8	
145		Richard & Norma Norris	13B9	50±	270	D	Add 20' 242 TL		84	8	SEE 143 over
146		Richard Crampton	13B9	3	485	8	80		84	198	
147		Bob Perattiani	14C2	7	350	46	50/39 1/2		85	198	
148		Tom Steadman	14A5	25	325	5	40/38 1/2		84	198	
149		Thelma Edwards	14A7	25	77	12	20/19		84	36	
150		Jay Frater	14C1	15	375	12	200/198 1/2		85	198	

* Casing Length a/b
a: Total Length

151 - 175

MAP SOURCE: VERMONT AGENCY OF TRANSPORTATION



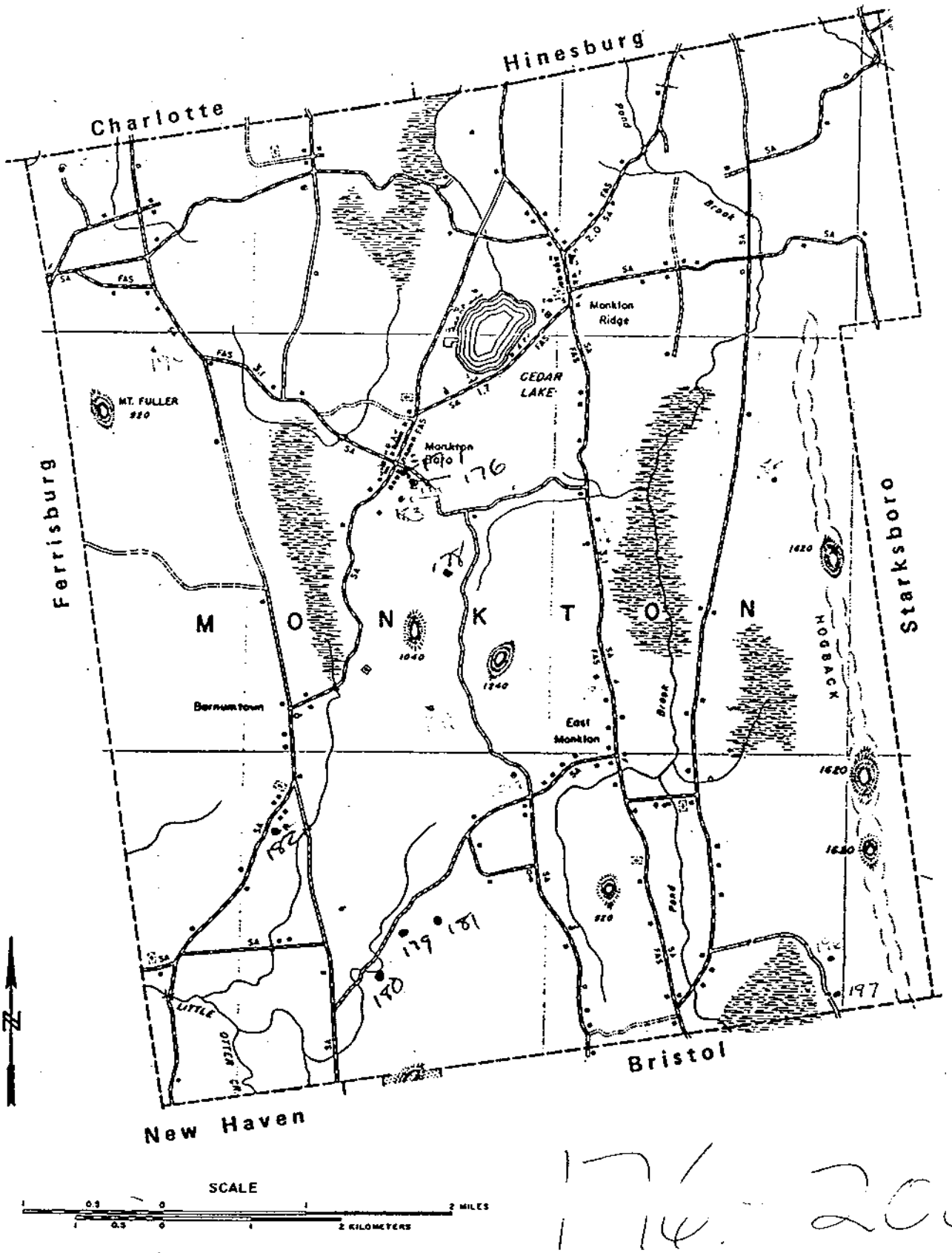
BASIC WELL DATA

TOWN Monkton

WELLS 151 - 175

NUMBER WR	USGS	NAME OF WELL OWNER OR PURCHASER (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FT.	DEPTH ROCK FT.	CASING LENGTH FT.*	STATIC WATER LEVEL	YR DR	DRILL #	RE
151		Richard Jerome	14A8	30	300	164	171 / 169 1/8		85	198	
152		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		85	36	
153			14A4	5	112	2	12	15	85	200	
154		Russ Horner	[illegible]	10	300	12	40		85	198	
155		[illegible]	[illegible]	8	250	35	40	12	85	66	
156		Robert Von Brown	14A7	6	222	124	133		85	8	
157		Tony Thomas	13D3	3 1/2	172	40	126		85	8	
158		John Pluges	14C1	100	150	12	40		86	198	
159		Greg Martell	14A8	10	300	16	120		86	198	
160		Tom Rawls	13D6	20	140	20	40	20	86	23	
161		Peter mc Nau (P)	13D3	60	1100	70	80		86	23	
162		Ed German (P)	13B9	4 1/2	180	45	90	20	86	23	
163		DAVID Thomas (P)	14A7	1 1/2	1100	[illegible] 5	20	15	86	23	
164		Donald Doliver	14A7	2	325	15	102		86	198	
165		Mike Chesley	14A8	15	175	68	100		86	198	
166		julie wasserman	13B9	60	200	41	58		86	198	
167		Alice Hooper	13D3	30+	424	44	202'- 2 1/2"		86	8	
168		Terry Thomas	14A7	15	173	40	127		86	8	
169		Dan D'Avignon	14A7	75+	178	9	20'4"		86	8	
1986 170		Dave Durgin	13D3	1/2	423	1	17'9"		86	8	
171		Stephanie Buck	13d3	2 1/2	400	10	20	25	86	23	
172		Bill Dunn (P)	13d3	4 1/2	280	21	40	40	86	23	
173		Mike Fortain	13d3	4	260	125	140	25	86	23	
174		Bonita Larrow	13d3	2 1/2	252	18'1/2	22 1/2	F	86	36	OF 160
175		Andrew Lutaxnerau	14A7	15	303	199	202		66	36	

*Casing Length a/b a = Total Length b = Length Below L.S.


Hinesburg
Charlotte
Ferrisburg
Starksboro
New Haven
Bristol
MONKTON
Monkton Ridge
CEDAR LAKE
MT. FULLER
Monkton
Bernumtown
East Monkton
HOGBACK
Brook
Pond
LITTLE OTTER CR.
N
SCALE
2 MILES
2 KILOMETERS

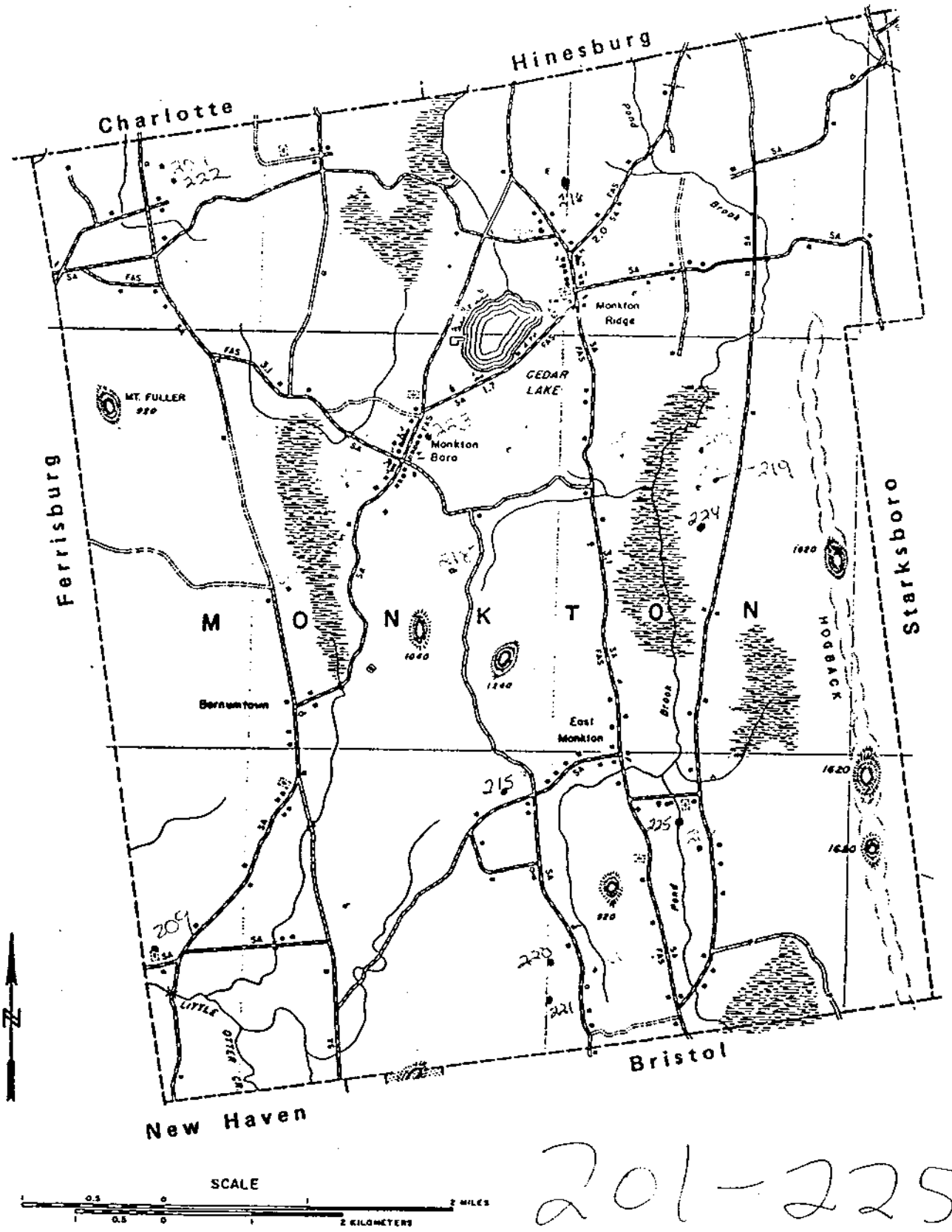
176 - 202

BASIC WELL DATA

TOWN Monkton

WELLS 176 - 200

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMA
176		David Breger	14A7	10	103	25	32	53	86	36	
177		David Breger	14A7	20	116	8	20		86	36	
178		John Chamberlain	14A7	1.4	227	6	21		86	36	
179		Henry Cook	14A8	20	55	12	27	15	86	68	
180		Richard Desmone	14A8	5	190	21	33	8	86	68	
181		Bud Cook	14A8	20	85	12	24	25	86	68	
182		Clark Mosher	14A8	3	450	7	40		87	198	
183		David Boyer	14A7	3 1/4	226	13	21		87	36	
184		Jarrell Hill	14C1	50	52	26	29		87	36	
185		Richard A. Gould	14A8	7.5	160	6	130		87	36	
186		David Lucey	14C1	60+	151	6	151		87	8	G
187		Gary Blanchette (P)	14C1	100	105	6	90	15	87	23	G
188		Francis Driscoll (P) Town of Monkton	14A7	4	300	90	100	40	87	23	
189		Scott Driscoll (P)	14C1	100+	160	6	140	20	87	23	G
190		Tom Henry	13B9	2	1000	5	60		87	198	
191		M.L.I. Construction	13B9	6	255	96	254		87	198	
192		Wayne Smith	14A7	1-1.5	675	38	60		87	198	
193		Charles Farmer	14A8	7	425	93	130		87	198	
194		Dale Love	14A4	20	160	45	50	15	87	23	
195		Norm Rodd	14A7	1	400	100	100		87	23	
196		Henry Cook	14C2	6	175	93	105	9	87	68	
197		Henry Cook	14C2	12	175	26	40	35	87	68	
198		Dave Enman (P)	13B9	50	460	12	21.5	90	88	36	
199		David Boyer (P)	14A7	40	118	35	40		88	36	
200		Charles Palentomo (P)	13B6	.5	502	8	20		88	36	



SCALE

0.5 0 1 2 MILES

1 0.5 0 1 2 KILOMETERS

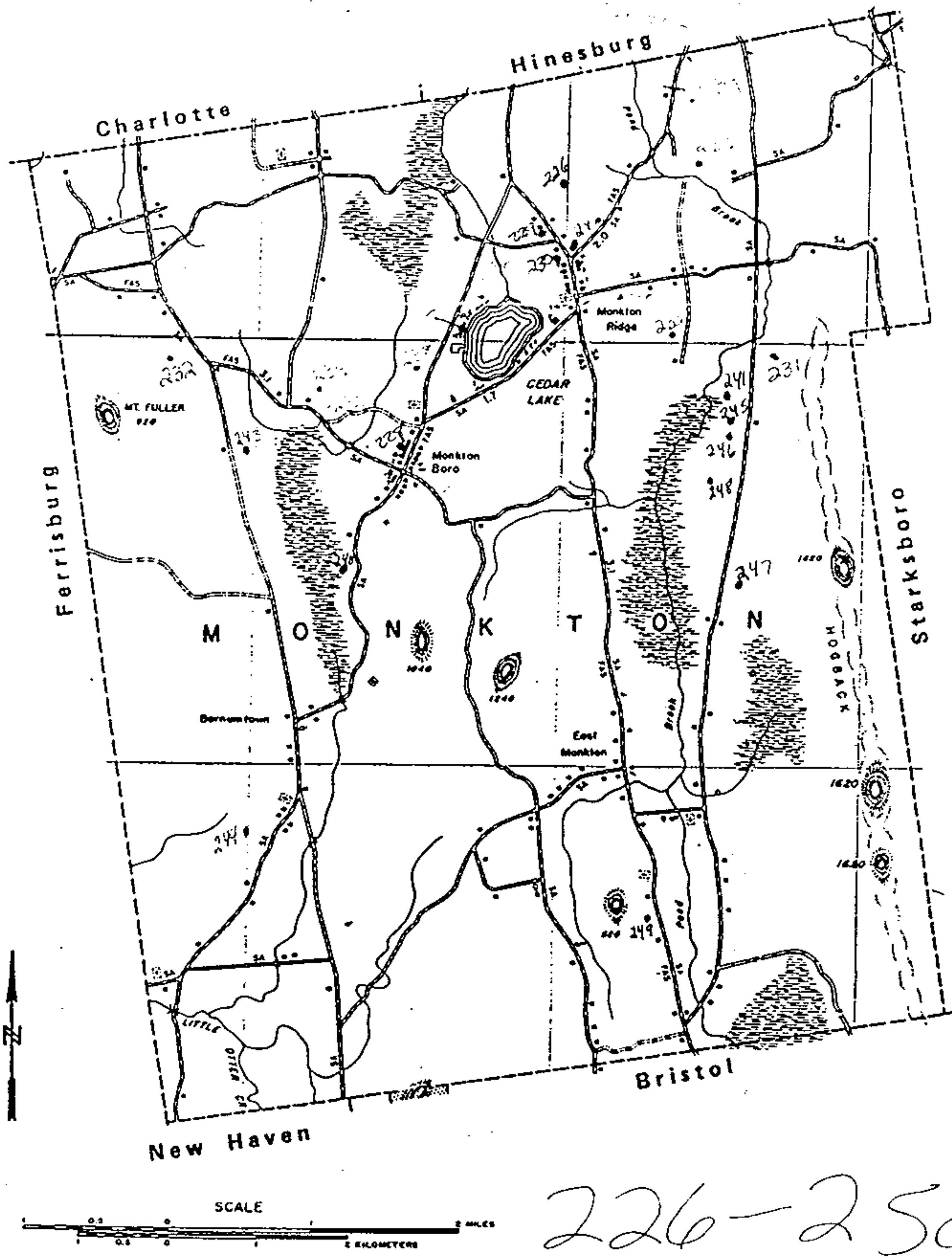
201-225

BASIC WELL DATA

TOWN Moulton

WELLS 201 - 225

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMARKS
201		Bob Coleman	14C1	45	105	6	105	10	88	23	SN/
202		Chris Hopwood	14A7	12	200	50	200	20	88	23	
203		Buss Baker	13B9	50	360	60	70	150	88	23	
204		Green Mt. Trout Farm Inc. (P) Bob Coleman	14C1	45	75	6	65	20	88	23	G
205		Spec. House Gary Blanchette (P)	14C1	8	380	0	105	F	88	23	OF-1GPM
206		Richard Farnham Assoc. (P)	14A7	2	440	25	25		88	23	
207		Nancy Preston Sabin	13B6	6	200	25	40	20	88	23	
208		Richard Farnham (P)	14A7	3	260	58	68	20	88	23	
209		Bill Vincent	14A5	30	175	127	152		88	198	
210		Paul Stetson	13B9	7	495	27	90		88	198	
211		Kuzins Const. (P)	14C2	75	85	3	75		88	198	
212		Bruce Wye	14A7	2.5	375	15	60		88	198	
213		Frank Provencha	14C2	6	140	5	20		88	23	
214		David Boyer (P)	13B9	6	195	51	58		88	36	
215		Dick Gould	14A8	15	183	83	145		88	36	
216		Russ Baker	13B9	.5	560	4	20		88	23	
217		Butch + Leo Dupont	13d3	2	440	75	80	30	88	23	SD
218		Scott Driscoll	14A7	20	240	30	40	20	88	23	
219		Robert Coleman	14C1	30	190	6	187	30	88	68	
220		Bud Cook	14C2	15	145	20	42	120	88	68	
221		Bud Cook	14C2	15	85	10	63	40	88	68	
222		Jim Sabin	13B6	10	300	15	22	20	88	23	
223		Kevin Boise	14A7	7	100	95	80	10	88	23	
224		Bob Colman	14C1	45	105	6	105	10	88	23	GSN
225		Peter Hall	14C2	10	140	6	140	15	88	23	G


Hinesburg
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Ferrisburg
Starksboro
Bristol
New Haven
MONKTON
Monkton Ridge
CEDAR LAKE
Monkton Boro
MT. FULLER
Barnumtown
East Monkton
HOGBACK
Pond Brook
SCALE
2 MILES
2 KILOMETERS

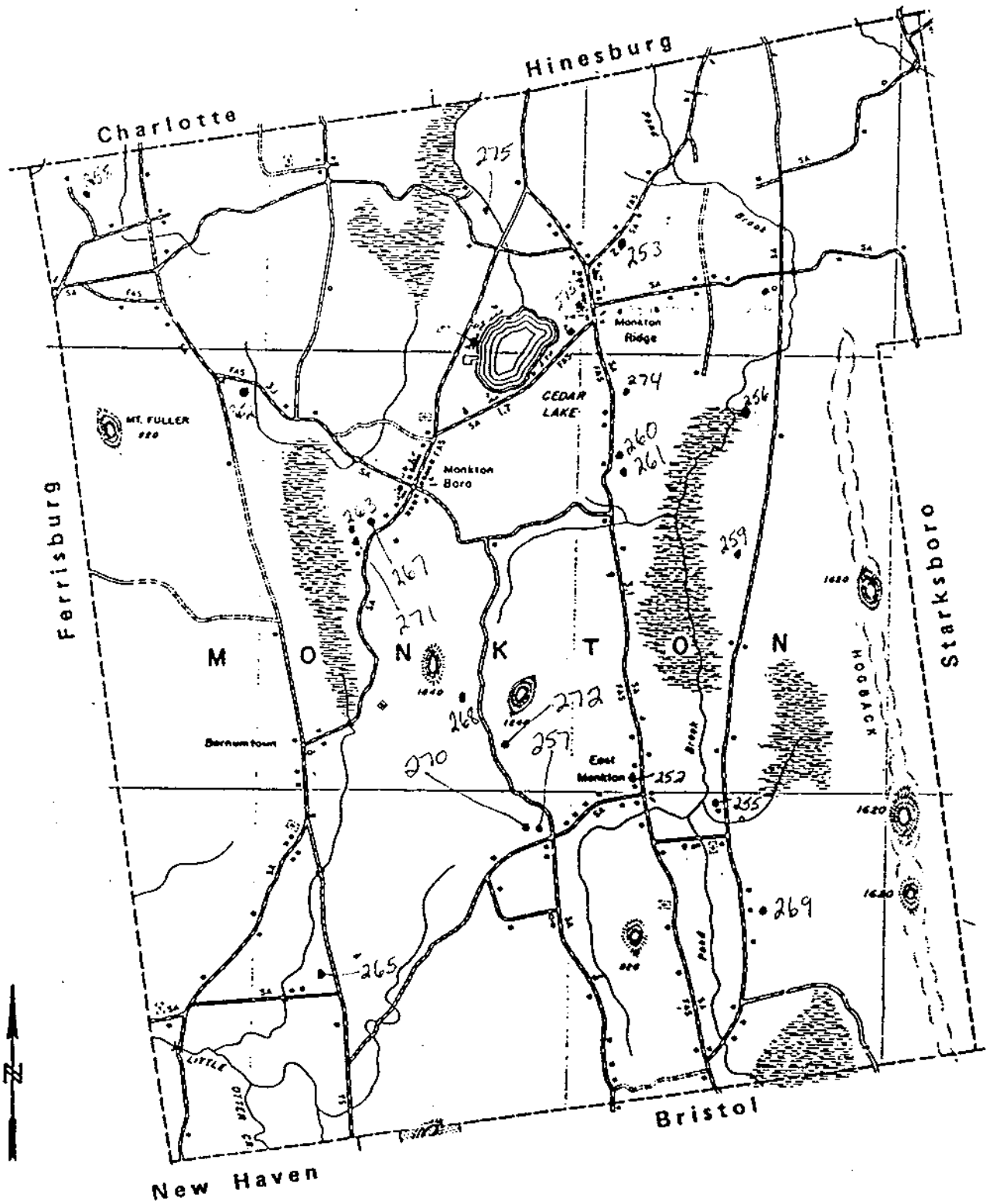
226-250

BASIC WELL DATA

TOWN Monkton

WELLS 226 - 250

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMARKS
226		Russell Baker	13B9	45	300	45	200	50	88	23	
227		Richard Caldwell	13B9	10	113	57	66		80	36	
228		James Stewart	14A7	25	141	36	40		88	36	
229		Charles Parker	13B9	50	281	258	270		88	36	
230		Bill Tebo	13B9	15	201	86	90		88	36	
231		Rene Curran	14C1	20	148	6	148		88	36	
232		Mrs. Kim Jacobs	14A4	25	120	20	40	30	88	23	
233		Mary Trucott	13d3	4	173	50	51		88	8	
234		Robert Rougier	14A7	15	235	46	51		88	8	
235		Andrew MOFFATT	14A7	4.5	173	41	48		87	8	
236		Tim Peek	13B9	100+	190	160	192	OF	88	23	F/SN
237		Scott Gardner (P)	13d3	15	280	35	70	20	88	23	
238		Wayne Walter	14A7	9	106	89	91	OF	82	125	F-5 GPM
239		Gunther Hetzel	13d3	6	140	34	36	20	87	41	
240		Stephen Crissman	14A7	10	380	25	42	75	89	23	
241		Bob Coleman	14C1	45	612	111	112		88	36	SN
242		Charles Conway	13D3	3½	202	22	28		88	36	
243		Bill Kuhns	14A4	9	320	55	100	20	89	23	
244		John Coyle	14A5	30	68	7	20'3"	8	88	125	
245		Green mountain trout Farm Bob Coleman(P) (Monkton Fish Farm)	14C1		96	6	test	well	89	32	plugged
246		Green mountain trout Farm Bob Coleman(P) (Monkton Fish Farm)	14C1	10	207	6	195.7	27	88	32	
247		Gary Clark	14C1	50	175	14	67		88	198	
248		Nicole Williams	14C1	50	250	149	163		88	198	
249		Paul Leclair jr.	14C2	1½	450	81	96		89	198	
250		William Van Steambura	13D3	2	340	30	60	50	88	23	SN



SCALE

0.5 0 1 2 MILES

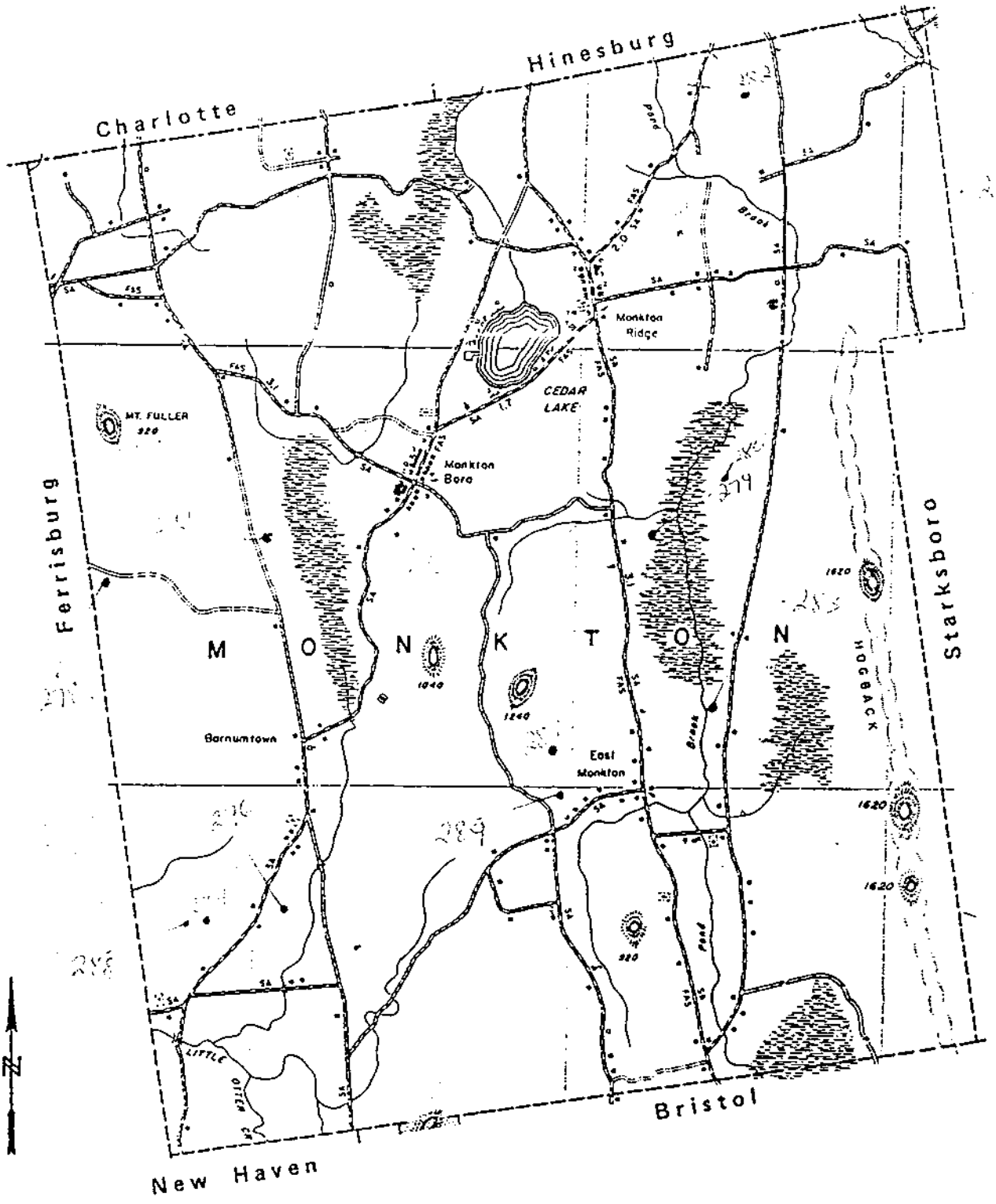
0.5 0 1 2 KILOMETERS

251-275

TOWN Monkton

WELLS 251 - 275

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMARKS
251		Bradley Bedeaux	13D3	3	400	40	62	50	89	23	SW
252		Michael Cousino	14C1	8	325	119	128		89	198	
253		[illegible]	13D3	3	440	43	60	50	89	23	SW
254		Allen Fisher	13D3	1	400	85	120	26	89	23	
255		Peter Norris	14C2	15	140	43	60	20	89	23	SW
256		Bob Coleman	14C1	40	476	D	D		89	36	
257		Doug Beyden (P)	14A8	15	260	50	230	20	89	23	SW
258		Daniel Zucker (P)	13B6	3	240	3	20	20	89	23	
259		Robert Tatro (P)	14C1	20	160	48	50	40	89	23	
260		David Sawyer	14C1	4½	351	202	204		89	36	
261		Jim Burnett	14C1	60	158	6	152		89	36	G
262		Robert J. matera	14A4	12	199	84	103		89	8	
263		Richard Farnham (P)	14A7	4	380	40	50	30	89	23	
264		Gary Blanchette (P)	13D3	15	160	62	80	10 PM OF	89	23	
265		Larry Grace (P)	14A8	5	200	48	50	30	89	23	
1989 266		Dorothy Blankens	13B9	15	248	27	63		89	8	
267		Bill Kalanges mathew Limoge (P)	14A7	3/4	461	76	80		89	36	
268		Mr. Henry Coak	14A7	20	202	140	147		89	36	
269		Francis Provancha	14C2	10	200	50	60	30	90	23	
270		Martin Clark	14A8	20	200	60	83	25	90	23	SW
271		Mike Bowen	14A7	15	100	55	60		90	36	
272		Scott Driscoll (Home Tech Enterprises (P)	14A7	15	160	27	70	20	90	23	
273		Ralph Fitzgerald United Methodist Monkton Church (P) c/o Rod Burit	13B9	25	200	86	100	20	90	23	
274		Affordable Homes of Vermont (P)	14C1	3	340	170	205	40	90	23	
275		Richard Norris	13B9	10	140	80	118	1/8 GPM OF	90	23	


Hinesburg
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Starksboro
New Haven
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Monkton Ridge
CEDAR LAKE
MT. FULLER
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Barnumtown
East Monkton
HOGBACK
1040
1240
1620
1620
920
LITTLE
OTTER
Brook
Pond
N
SCALE
0.5 0 1 2 MILES
0.5 0 1 2 KILOMETERS

276 - 300

BASIC WELL DATA

TOWN Monkton

WELLS 276 - 300

NUMBER WR	NUMBER USGS	NAME OF WELL OWNER or Purchaser (P)	MAP LOC	YIELD GPM	TOTAL DEPTH FEET	DEPTH ROCK FEET	CASING LENGTH FEET	STATIC WATER LEVEL	YR DR	DRILL NO.	REMA
276		Jennifer VanRoac	14A8	50	220	13	30	30	90	23	
277		George Webster	14A4	4	300	63	75	30	90	23	
278		David Winrock	14A4	5-6	200	15	40		89	198	
279		Francis Provancha	14C1	30	245	3½	20	25	90	23	
280		Bob Tatro	14C1	20	160	47	80	40	90	23	
281		Roger Devoid	13D3	2½	400	16	60	40	90	23	
282		Vincent Cartularo	13D3	10	300	40	80	30	90	23	
283		John Austin	14C1	4	240	25	50	20	90	23	
284		Anthony Panella(P)	14A5	7	460	15	40	35	90	23	
285		Ray Patterson	14A7	5	350	62	80		90	198	
990 286		Mt. Pleasant Associates(P)	13D3	2	320	40	52		90	112	
287		Jerry Cook(P)	14A7	30	85	6	80	15	90	23	G
288		Steve Miller(P)	14A5	2	360	19	34	15	91	23	
289		Carlton Quenneville	14A8	4	200	70	100	15	91	23	

Table 1

Project: Monkton Ridge/VDEC
Location: Monkton Ridge, Vermont

Job Number: 9130C-299

Ground Water Quality Results (ppb)

Data Point	Compound	4-10-91	8-2-91	8-30-91	10-4-91	10-31-91	1-29-92
	Benzene	16				24	
	Toluene	4				4	
	Ethylbenzene	24				16	
	Xylenes	<1				4	
	MTBE	<5				<5	
Dingler Well	BTEX	45				48	
	Benzene	17	6	11	19	20	19
	Toluene	2	<1	<1	2	2	3
	Ethylbenzene	13	4	12	16	18	15
	Xylenes	<1	<1	<1	<1	<1	<1
	MTBE	<5	<5	<5	<5	<5	<5
Horner Well	BTEX	33	12	25	38	41	38

NOTES:
MTBE in upper right corner of cell
BTEX in lower left corner of cell
< - Compound not detected at specified detection limit

Ground Water Quality Results (ppb)

Data Point	Compound	2-27-92	3-31-92	4-29-92	5-26-92	6-24-92	7-29-92
	Benzene		24			25	24
	Toluene		7			12	11
	Ethylbenzene		40			68	40
	Xylenes		7			<1	<1
	MTBE		<5			<5	<5
Dingler Well	BTEX		78			106	76
	Benzene	15	19	12	16	18	19
	Toluene	<1	4	<1	<1	<1	<1
	Ethylbenzene	12	14	10	10	14	14
	Xylenes	<1	3	<1	<1	<1	<1
	MTBE	<5	<5	<5	<5	<5	<5
Horner Well	BTEX	29	40	24	28	34	35

NOTES:
MTBE in upper right corner of cell
BTEX in lower left corner of cell
< - Compound not detected at specified detection limit

Table 1
Job Number: 9130C-299
Sheet 3 of 3

Project: Monkton Ridge/VDEC
Location: Monkton Ridge, Vermont

Ground Water Quality Results (ppb)

Data Point	Compound	9-1-92	12-4-92	4-26-93			
	Benzene			27			
	Toluene			7			
	Ethylbenzene			32			
	Xylenes			3			
	MTBE			<5			
Dingler Well	BTEX			69			
	Benzene	21	19	19			
	Toluene	<5	7	4			
	Ethylbenzene	15	18	14			
	Xylenes	<1	<1	<1			
	MTBE	<5	<5	<5			
Horner Well	BTEX	42	45	38			

NOTES:
MTBE in upper right corner of cell
BTEX in lower left corner of cell
< - Compound not detected at specified detection limit

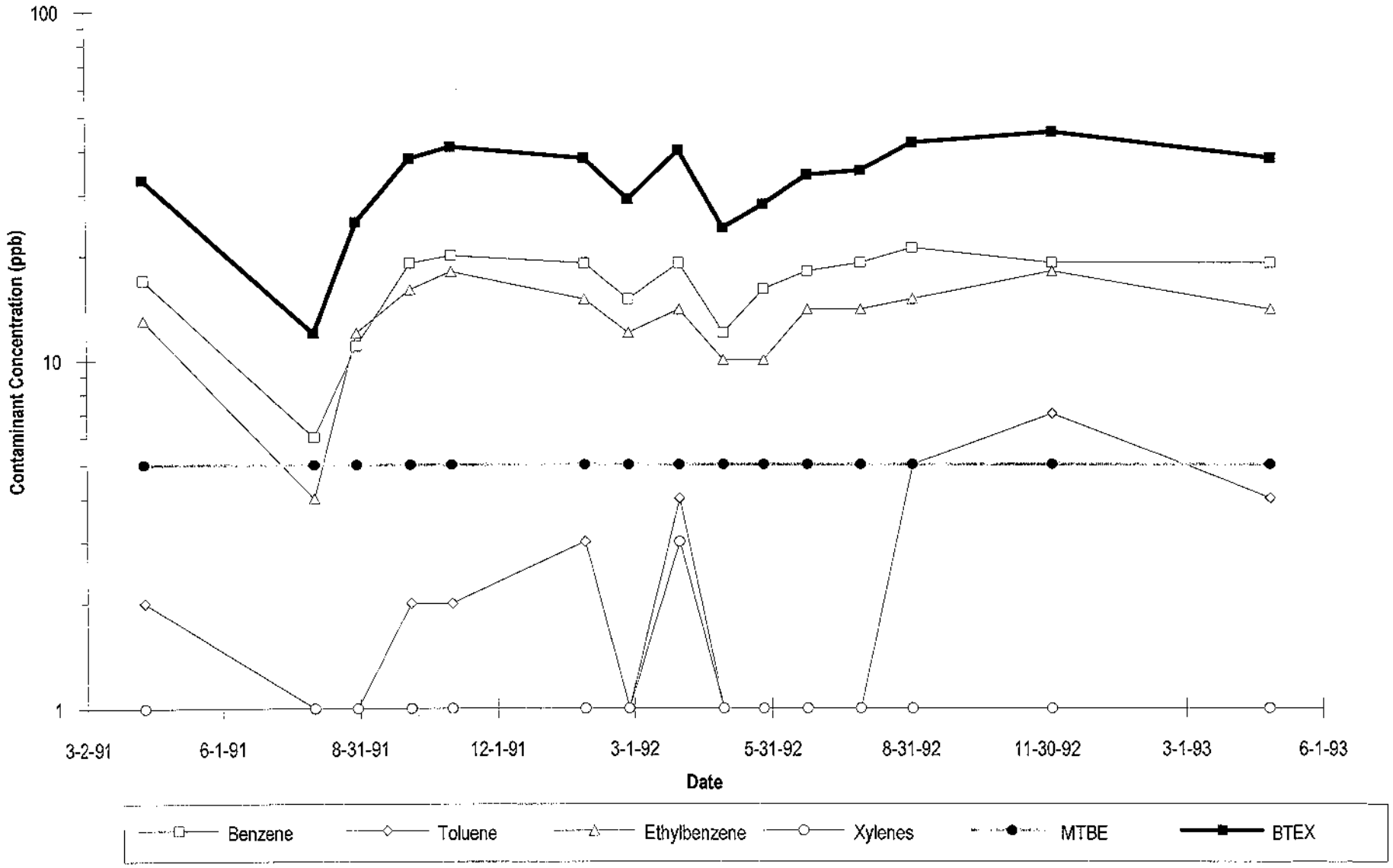

VDEC/Monkton Ridge
Horner Well Contaminant Concentrations
100
10
1
Contaminant Concentration (ppb)
3-2-91
6-1-91
8-31-91
12-1-91
3-1-92
5-31-92
8-31-92
11-30-92
3-1-93
6-1-93
Date
Benzene
Toluene
Ethylbenzene
Xylenes
MTBE
BTEX

FIGURE 5

VDEC/Monkton Ridge
Dingler Well Contaminant Concentrations

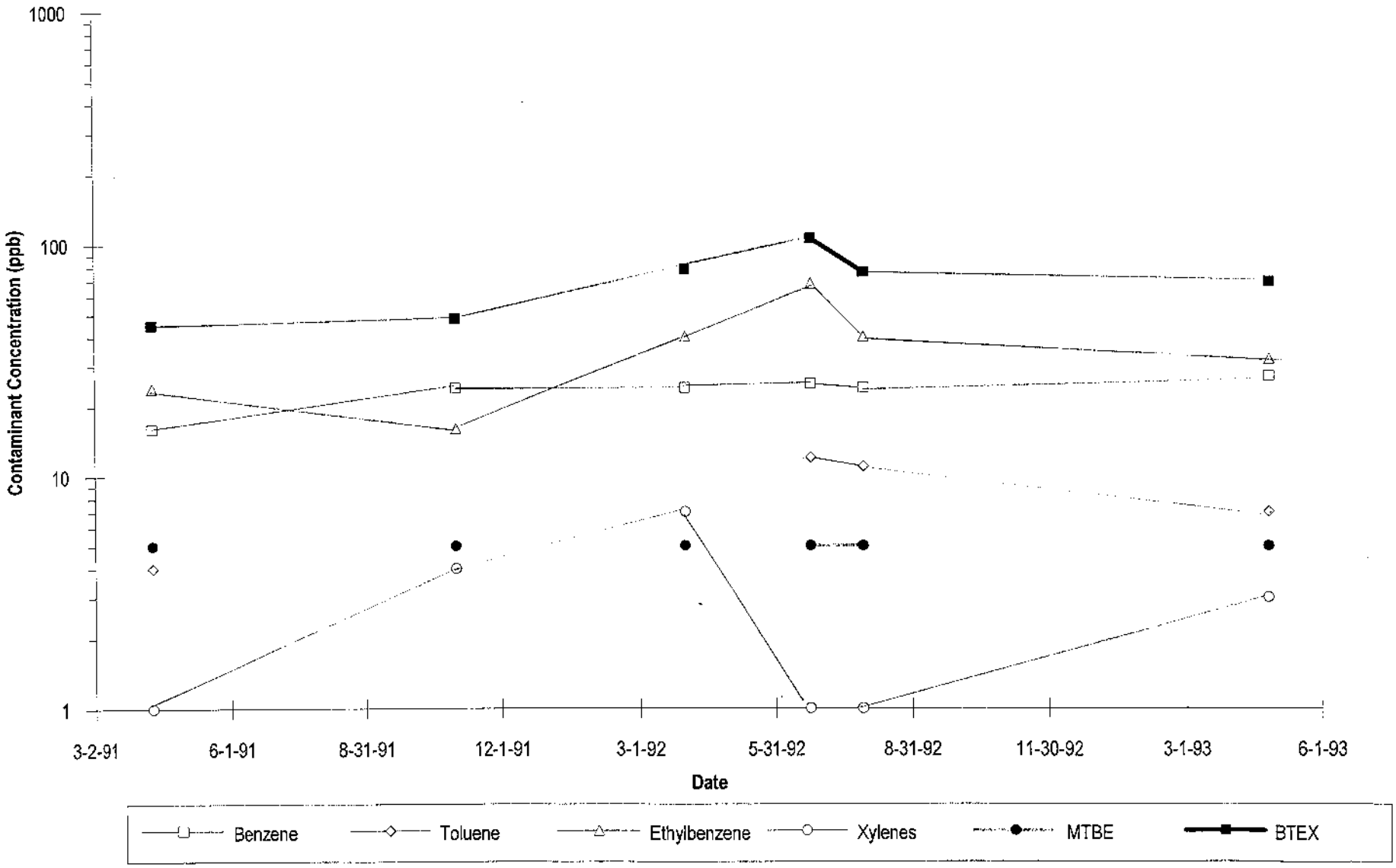
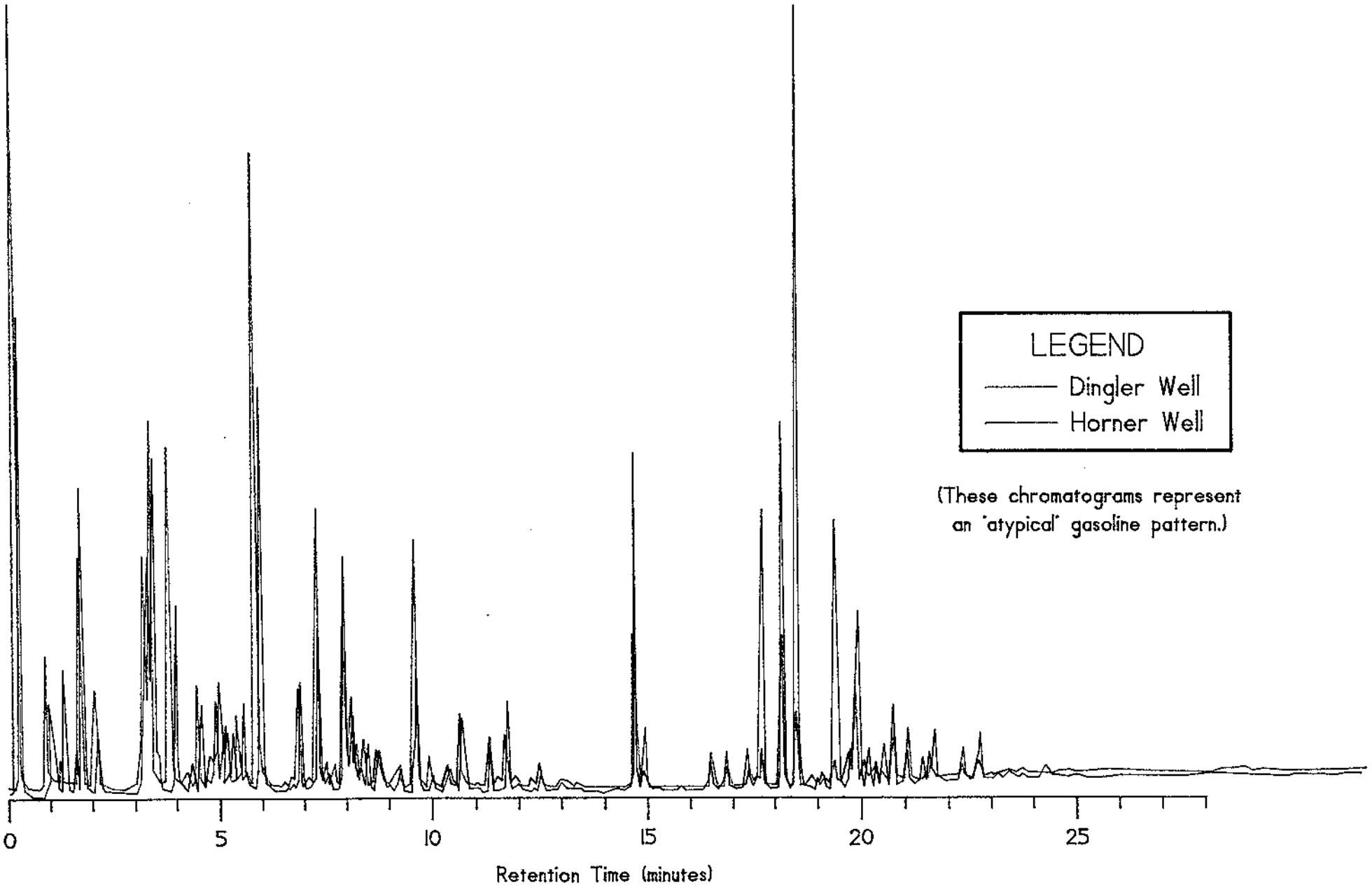


FIGURE 6

Chromatograms of Dingler and Horner Well Water Samples for April 26, 1993

Figure 7



APPENDIX C

Correspondence

DATE 8/26/85 INSPECTOR GLENN [illegible]

JAN 8 1992

BUSINESS NAME Bennetts Garage

ADDRESS MONKTON

OWNER Robinsons

ADDRESS Essex Jct VT.

NUMBER OF TANKS REMOVED 2

CONDITION OF TANKS

1. 1- 50" X 10' (1M) Rusted No Evidence of Leakage

2. 1- 68 X 18 (3M) Rusted No Evidence of Leakage

3.

4.

5.

6.

7.

8.

SOIL CONTAMINATED? NO

MONITORING WELL INSTALLED? NO

WHERE WAS THE CONTAMINATED SOIL REMOVED TO? N/A

Soil Appeared To be A Gravel Type No Evidence of Leakage

CC:

Fire Prevention Division, Department of Labor & Industry

X Hazardous Materials Management Program

X Rusty Horner
7 Hickok Place Burlington Vt 05401

1020

ROBINSON'S INC.
P.O. BOX 405
ESSEX JCT. VT.
05453-0405

Mr Bob Haslam
State of Vermont
Hazardous Materials Management Division

RE: Monkton Ridge (DEC Site #911020

Dear Mr Haslam

During our recent conversation regarding the investigation at Monkton Ridge, I expressed that my major concern was that by starting an investigation, the State would assume that Robinson's Inc. was a responsible party. I also told you that as far as my records indicate, Robinsons Inc. never owned gasoline tanks formerly at Bennetts Garage. In 1987 when the property was sold, Robinson's Inc. did agree - as a favor to our former customer - to remove the two 1000 gallon storage tanks that we did deliver gasoline into until 1978. At the time of removal Robinson's Inc. followed all regulations and in good faith saw to it that the site was closed properly. Also at that time the state "assured" us (via the tank removal form) there was "No evidence of leakage". Consequently any time Robinson's Inc. would have had to discuss this with the property owners was lost. We assumed all was well, paid the bill and went on with other business.

In your letter of Nov 16, 1992 it is stated "By initiating the work, Robinsons would assume some degree of responsibility." While I share HMMD's greater concern that the site be cleaned up, I do not feel that it would be in the best interest of my company to initiate an investigation.

If I can be of any further assistance, please do not hesitate to call.

Sincerely,

James A. Robinson
Pres. - Robinson's Inc.

9/1020

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404
802-244-8702

September 22, 1992 CERTIFIED LETTER

James Robinson
Robinson Fuels Inc.
P.O. Box 405
Essex Junction, VT 05452

Subject: Petroleum contamination in drinking water supplies in Monkton Ridge

Dear Mr. Robinson:

On April 10, 1991, personnel from the Department of Environmental Conservation were on site to investigate a report of petroleum contamination in a private drinking water supply in Monkton Ridge.

Based on the results of this investigation the DEC has determined the following.

1) Robinson Fuels owned gasoline underground storage tanks at the former Bennetts Garage in Monkton Ridge.

2) The water supply for the former Bennetts Garage property, as well as the water supply at an abutting property, are now contaminated with gasoline compounds.

3) The degree and extent of petroleum contamination in soils and groundwater at the former Bennetts Garage and vicinity has not been evaluated.

4) No other underground storage tanks now containing or formerly containing gasoline are known to exist in this vicinity.

The Secretary of the Agency of Natural Resources has concluded that the migration of the petroleum (which is classified as a hazardous waste) may present an imminent danger to the environment and to the people adjacent to the former Bennetts Garage. He has concluded that it is necessary to take appropriate action to minimize the immediate impact of such releases to the public health and the environment. Title 10 V.S.A. Section 1941 provides, however, that before expending state funds to do the mitigation referred to above, the Agency may provide parties who are potentially responsible for the threat to the environment with the opportunity to voluntarily perform the necessary actions under the direction of the Agency of Natural Resources.

The State hereby gives notice that it believes that Robinson Fuels is the responsible party under Title 10 V.S.A. Section 1941.

The Secretary has concluded that the following actions are necessary to mitigate the situation and hereby requests Robinson Fuels to perform the following work:

A. Immediately provide potable water for the two impacted private water supplies.

B. Retain the services of a qualified consultant to complete the following:

1. Perform a thorough subsurface site assessment in order to determine the source, degree, and extent of the subsurface petroleum contamination at the former Bennetts Garage and adjacent properties.

2. Conduct a limited risk assessment to determine the impact this contamination has on surrounding receptors. This should include continued sampling of all drinking water wells within a reasonable radius to determine the extent of contamination to drinking water wells.

3. Develop and implement a remedial plan to address the contamination found impacting the water supply wells. This should include providing an alternative water supply for the contaminated wells.

4. Develop and implement a long-term monitoring program that can be used to evaluate the contamination over time.

5. Prepare and submit to the DEC a work plan which contains the elements necessary to complete items 1-4 above. This work plan will need to be approved by the DEC prior to initiation of work.

Please inform this office, in writing, within ten (10) days of receipt of this Notice as to whether you intend to complete the work described above voluntarily.

If you agree to do the work described above, you are requested to initiate these actions within ten (10) days of receipt of this letter. Failure to do so by this date may result in injunctive relief or in the expenditure of State funds to have this work performed.

If you decline to do so, the secretary may move, pursuant to Title 10 V.S.A. Section 1941, to bring suit by the Vermont Attorney General's Office for injunctive relief or for the imposition of penalties and fines.

The Secretary may also move to expend state funds to have the work performed. If he does so, he will move pursuant to Title 10 V.S.A. Section 1941, to have Robinson Fuels reimburse the State of Vermont for the costs of the mitigation described above.

Sincerely,

William E. Ahearn, Director
Hazardous Materials Management Division

WEA/sb.68

cc: Monkton Selectboard

APPENDIX D

Cost Estimate

Cost Estimate for Continued
Site Investigations at
Monkton Ridge

Task 1 - Ground Water Quality Sampling and Analysis

Hydrogeologist - 6 hrs @ $45.00	$270.00
Field Technician - 8 hrs @ $30.00	240.00
Field Technician (OT) - 2 hrs @ $45.00	90.00
Mileage - 150 miles @ $0.30/mile	45.00
24 Samples for EPA Method 8020 (Includes 2 duplicates and field blank) @ $55.00	1320.00
3 Samples for EPA Method 8260 (with peak ID) @ $77.00	231.00
15 Samples for Fecal Coliform & Fecal Strep. Analysis @ $33.00	495.00
Total Task 1	$2691.00

Task 2 - Perform a Soil Gas Survey in the Vicinity of the Former Garage

Hydrogeologist - 10 hrs @ $45.00	$450.00
Field Technician - 8 hrs @ $30.00	240.00
Field Technician (OT) - 2 hrs @ $45.00	90.00
Soil Gas Equipment	125.00
Photoionization Detector - 1 day @ $75.00	75.00
Mileage - 150 miles @ $0.30/mile	45.00
Total Task 2	$1025.00

Task 3 - Well Log Interpretation and Cross Sections

Hydrogeologist - 12 hrs @ $45.00	$540.00
Computer Technician - 4 hrs @ $30.00	120.00
Mileage - 70 miles @ $0.30/mile	21.00
Total Task 3	681.00

Task 4 - Summary Report with Recommendations

Senior Hydrogeologist - 2 hrs @ $75.00	$150.00
Hydrogeologist - 12 hrs @ $45.00	540.00
Project Manager - 4 hrs @ $50.00	200.00
Computer Technician - 4 hrs @ $30.00	120.00
Administrative Assistant - 4 hrs @ $30.00	120.00
Total Task 4	$1130.00
TOTAL TASKS 1 - 4	$5527.00

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